

NCHRP

REPORT 570

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

Guidebook for Freight Policy, Planning, and Programming in Small- and Medium-Sized Metropolitan Areas

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Guidebook for Freight Policy, Planning, and Programming in Small- and Medium-Sized Metropolitan Areas

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Planning and Administration • Design • Operations and Safety • Rail • Freight Transportation

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TRANSPORTATION RESEARCH BOARD

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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

In recognition of these needs, the highway administrators of the American Association of State Highway and Transportation Officials initiated in 1962 an objective national highway research program employing modern scientific techniques. This program is supported on a continuing basis by funds from participating member states of the Association and it receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

The Transportation Research Board of the National Academies was requested by the Association to administer the research program because of the Board's recognized objectivity and understanding of modern research practices. The Board is uniquely suited for this purpose as it maintains an extensive committee structure from which authorities on any highway transportation subject may be drawn; it possesses avenues of communications and cooperation with federal, state and local governmental agencies, universities, and industry; its relationship to the National Research Council is an insurance of objectivity; it maintains a full-time research correlation staff of specialists in highway transportation matters to bring the findings of research directly to those who are in a position to use them.

The program is developed on the basis of research needs identified by chief administrators of the highway and transportation departments and by committees of AASHTO. Each year, specific areas of research needs to be included in the program are proposed to the National Research Council and the Board by the American Association of State Highway and Transportation Officials. Research projects to fulfill these needs are defined by the Board, and qualified research agencies are selected from those that have submitted proposals. Administration and surveillance of research contracts are the responsibilities of the National Research Council and the Transportation Research Board.

The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

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FOREWORD

By Ronald D. McCready

Staff Officer

Transportation Research Board

This guidebook provides the necessary resources to undertake freight transportation planning activities in small- and medium-sized metropolitan areas. This guidebook should be especially useful to small- and medium-sized Metropolitan Planning Organizations (MPOs), as well as their state and federal partners, as they work to effectively integrate freight into local and regional transportation systems planning, priority programming, and project development planning activities.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21) emphasized the need for state and metropolitan multimodal and intermodal transportation policy, planning, and programming activities—including identification of specific freight transportation activities. Results of successful freight programs in some of the nation’s larger metropolitan areas have been presented at meetings and in publications of federal agencies, the Transportation Research Board, and other organizations. However, information about freight policy, planning, and programming activities in small-sized (less than 200,000 population) and medium-sized (200,000 to 1 million population) MPOs is more limited. Thus, there has been an ongoing need to systematically collect better information about freight programming activities in small- and medium-sized metropolitan areas, including freight movement on main transportation routes, intermodal connectors, and intermodal facilities and terminals.

To support a better understanding of freight transportation, research is needed to (1) examine and analyze how state departments of transportation (DOTs) and MPOs are carrying out freight policy, planning, and programming activities; and (2) develop recommended approaches for improving methods and processes aimed at defined freight objectives for small- and medium-sized metropolitan areas. The objective of this project was to develop a guidebook that can be used by practitioners and decision-makers to address freight issues in small- and medium-sized metropolitan areas. The guidebook describes how freight policy, planning, and programming processes can be most effectively designed, initiated, and managed. The research focused, in part, on lessons learned from experiences in small- and medium-sized metropolitan areas that resulted in more effective consideration of freight issues in policy, planning, and programming decisions.

Under NCHRP Project 8-47, “Guidebook for Freight Policy, Planning, and Programming in Small- and Mid-Sized Metropolitan Areas,” a research team lead by Cambridge Systematics, Inc., carried out a comprehensive investigation into current and effective practices for considering freight in the policy, planning, priority programming, and project development activities undertaken in small- and medium-sized metropolitan areas. The project resulted in a practical handbook designed to provide users with substantial information to

develop and tailor freight planning within the transportation planning processes of these metropolitan areas. The guidebook includes : (1) an introduction providing a brief background on the importance of freight transportation planning for small- and medium-sized metropolitan areas; (2) instructions for the effective use of the guidebook; (3) a “Getting Started” module with a self-assessment exercise, evaluation steps to assess the nature of freight planning in the area, and identification of the appropriate mix of activities that can best achieve freight planning goals in the area; (4) specific guidance to stimulate freight policy, planning, and programming activities within established MPO program functions, including long-range planning, transportation improvement programming, and unified planning work program development; (5) a comprehensive list of sequential steps that can be taken to establish an effective freight transportation planning program; and, (6) a freight reference module that includes data and analytical tools, training resources, case studies, available freight research, and freight glossary references. The guidebook should be of significant use to managers, practitioners, and decision-makers interested in addressing freight within the planning processes of small- and medium-sized metropolitan areas.



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Introduction

Background

Over the last decade, the incorporation of freight issues into the policy, planning, and programming activities of state departments of transportation (DOTs) and metropolitan planning organizations (MPOs) has received significant focus from federal transportation agencies, business and industry leaders, and the U.S. Congress. This public policy focus on including freight in the statewide and metropolitan transportation planning process has been driven by several factors including

- Federal surface transportation legislation, beginning with the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, which first emphasized freight as a factor to consider in the transportation planning process. The importance of freight planning was further emphasized in the Transportation Equity Act of the 21st Century (TEA-21) and again with the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU);
- Recognition by business and community leaders that efficient freight transportation is a key factor in statewide and metropolitan economic competitiveness and vitality and an important consideration in business attraction and retention decisions;
- Continued globalization and an increasing reliance on international trade, which has heightened the importance of a safe, reliable, and secure transportation system and placed increased pressure on an already-strained infrastructure; and
- Acknowledgment from private industry that public investments will be considered and in many cases required to meet increasing freight demands.

These motivators for addressing freight within transportation policy, planning, and programming activities continue to evolve and grow in importance, challenging states and MPOs to develop the expertise and allocate the necessary resources to effectively manage the overall transportation system.

As states and MPOs begin or continue to address freight within their transportation planning programs, they face a new set of issues and opportunities. Freight traffic by most any measure is growing faster than passenger travel. In addition, freight is highly intermodal and cannot be addressed in neat modal pieces because it often crosses over modal boundaries. Also, meshing the time cycles of public sector planning with the time cycles of the business community has proven to be a challenge. Expectations are quite different: public sector officials are used to dealing with long lead times and high degrees of uncertainty. These are an anathema to the business community, which operates primarily in the short term. As a result business leaders are often reluctant to get involved in the public sector transportation planning and programming processes. While these challenges are faced by state DOTs and MPOs of all sizes, they are particularly daunting to small- or medium-sized MPOs, which may not have the staff, financial, or

political resources to effectively integrate freight within their existing transportation policy, planning, and programming activities.

However, experience shows that these problems can be and have been surmounted by states and MPOs. By better understanding freight needs and issues, it is possible to design and conduct an economical and efficient freight planning process that can be integrated with conventional transportation planning. The resulting process provides many benefits to conventional transportation planning, road safety, the freight community, the local economy, and ultimately to the traveling public.

Purpose

NCHRP Report 570: “Guidebook for Freight Policy, Planning, and Programming in Small- and Medium-Sized Metropolitan Areas” (herein after referred to as the Guidebook) has been developed to provide small- and medium-sized MPOs with the necessary resources to begin or enhance their freight transportation planning program. The Guidebook has been designed to provide MPO staff with a basic “how to” roadmap to initiate and implement a successful freight transportation planning program. It also functions as a gateway to the freight resources available through FHWA’s Capacity Building program and Freight Professional Development (FPD) program, which provide access to a vast set of data, research, and best practices related to freight policy, planning, and programming activities.

This Guidebook is one element in a broad approach to assist states and MPOs in incorporating appropriate freight considerations into their transportation planning activities. Specifically, this Guidebook focuses on the unique needs of small- and medium-sized MPOs. Within the context of the Guidebook, a small MPO is defined as one representing a population less than 200,000; a medium-sized MPO is defined as one representing a population between 200,000 and 1 million; and a large MPO is defined as one representing a population exceeding 1 million. In 2004, 298 MPOs, or nearly 80 percent of the total MPOs in the U.S., were considered small- or medium-sized. Further, since 2004 there have been many new MPOs formed, all small MPOs.

Throughout the Guidebook, the terms policy, planning, and programming are used repeatedly. In order to ensure the intent of specific guidelines, the following definitions are provided for clarification:

- **Freight policy activities** relate to the development of specific policy guidance concerning freight movements. Freight policy development is designed to help MPOs assess their roles in addressing freight issues and can help focus metropolitan freight planning efforts;
- **Freight planning activities** relate to the process by which freight issues and concerns are addressed in the statewide or metropolitan transportation planning activities and documents, such as Long-Range Transportation Plans (LRTPs), Transportation Improvement Programs (TIPs), and Unified Planning Work Programs (UPWPs);
- **Freight programming activities** involve the ways in which MPOs commit funds to freight-specific projects identified in the regional TIP; and
- **Metropolitan freight planning programs** stitch these various components into a comprehensive, continuous process.

Approach

The approach used to develop the Guidebook focused on several fundamental characteristics. These characteristics help ensure that the specific guidelines meet the needs of small- and medium-sized MPOs. The following summarizes these characteristics:

- **Provide flexibility.** During the development of the Guidebook, it became clear that there is no one activity or set of activities that will meet the unique freight needs of all small- or medium-sized MPOs. Each region has its own needs and priorities. The Guidebook has been developed to function as a flexible tool that allows users to pick and choose and modify the guidelines to best fit their needs.
- **Rely on integration.** One of the most common questions asked regarding the development of a freight planning program is “where do you get the resources.” In an ideal world, specific funding programs would be available to hire staff and conduct freight-related activities. However, it is critical that new freight programs not rely on new funding sources or additional staff, and MPOs are encouraged to find ways to work to integrate freight into their existing transportation programs. Reallocation of staff and funding is the best way to make sure the freight element of the program becomes an active component in the overall transportation program.
- **Use best practices effectively.** Freight transportation is still a relatively new discipline for many MPO staff. As such, preferred or best practices have not been developed for all aspects of freight policy, planning, and programming activities. Therefore, guidelines presented in this Guidebook maximize, but are not limited by, available best practices.

Use of this Guidebook should provide small- and medium-sized MPOs with the ability to initiate or enhance a freight transportation planning program that compliments their existing activities by providing a more balanced and integrated transportation system that meets the needs of all stakeholders.

Using the Guidebook

The analytical framework for conventional—passenger-oriented—transportation planning, as practiced by MPOs nationwide, has a great deal of uniformity. In many cases, problems and issues from MPO to MPO are quite similar and are closely related to population levels, that is, areas of similar size often have similar transportation issues. The same cannot be said for freight planning. Problems and issues differ significantly and the dynamics of the private sector freight industry often result in smaller regions suffering from the same types of congestion and access issues that used to be reserved for large, urban areas. While there is no standard approach for addressing freight issues in a region, there is a framework for addressing freight planning that has a common sequence and common elements. This Guidebook provides a flexible, problem focused framework that allows individual MPOs to structure a tailored approach to freight planning that reflects their knowledge, resources, and local conditions.

Incorporating freight policy, planning, and programming activities into an existing metropolitan transportation planning process may represent additional work for MPO staff and may require the commitment of additional resources, completion of training programs, the development of targeted outreach efforts, or other strategies. Recognizing this, the approaches defined in this Guidebook represent varying levels of effort designed to help MPO staff effectively manage the development of their freight programs; the sequential steps provided throughout the document are “guidelines” that staff should use to develop an approach that meets regional needs and matches available resources.

Who Should Use This Guidebook?

The Guidebook is designed for those involved in MPO freight policy, planning, and programming activities in small- and medium-sized metropolitan areas. It is structured to provide guidance to MPO staff members as they develop or enhance their metropolitan freight planning programs. The Guidebook defines basic approaches to help staff get started in freight planning and advanced approaches for those who are interested in more sophisticated freight planning activities or who wish to enhance existing freight planning programs. MPO staff designated to lead freight planning activities should become familiar with the entire document. Individual components of the Guidebook can then be used by practitioners to get an overview of a subject, delve into areas of particular interest, or identify additional references on specific topics or on terminology of freight planning.

How Should the Guidebook Be Used?

To reduce the Guidebook framework to its simplest terms, Modules 1 and 2 are introductory elements that describe the process, evaluate current freight knowledge, and identify initial focus

areas for freight program development, including a list of proposed activities. Module 3 provides specific guidelines for a range of subject areas. These guidelines describe key activities that should be undertaken to develop specific elements of a regional freight program. Module 4 provides a set of activities to develop a comprehensive freight planning program. Module 5 identifies categorized references to resources that will assist staff with freight program development activities.

To effectively use the Guidebook, it is important to first work through Modules 1 and 2. Upon completion of these activities, staff will be better prepared to select an initial set of freight program development activities. Once these activities have been identified, the appropriate mix of guidelines should be selected from Module 3. In addition, the Guidebook provides the ability to develop a freight program iteratively over time. Local issues and available resources will likely prevent most MPOs from implementing all the guidelines provided in Module 3. However, as part of regular updates, the Guidebook can be used repeatedly to create a freight program that evolves over time.

A description of each of the modules follows and the entire process is shown in Figure 1.1.

- **Module 1. Using the Guidebook.** This module provides (a) guidance on who should use the guide book, (b) suggestions on how to get started, (c) an overview of the entire process, (d) a description of the modules, and (e) instructions on how to effectively use this Guidebook.
- **Module 2. Getting Started.** This module provides a series of exercises designed to help users evaluate the degree to which freight issues and concerns already are being addressed within existing transportation planning programs. In addition, it helps users use the results of this evaluation to identify specific freight planning activities that are most appropriate for their region and organization.
- **Module 3. Integrating Freight into MPO Activities.** This module provides specific guidelines that serve as the menu of freight policy, planning, and programming elements. This menu will be used to develop a priority list of elements to form the initial freight planning work program.
- **Module 4. Putting It All Together.** This module provides a comprehensive list of sequential steps that could be taken to establish a freight transportation program. Although most MPOs will not undertake all of the steps at once, it is critical that staff understands how each step or activity fits into an overall freight program.
- **Module 5. Identifying Freight Resources.** This module provides a variety of critical freight data and resource references, including resources available from FHWA's FPD program, a list of available freight-related databases for North America, federal funding and financing programs, MPO case studies, and several freight glossary sources.

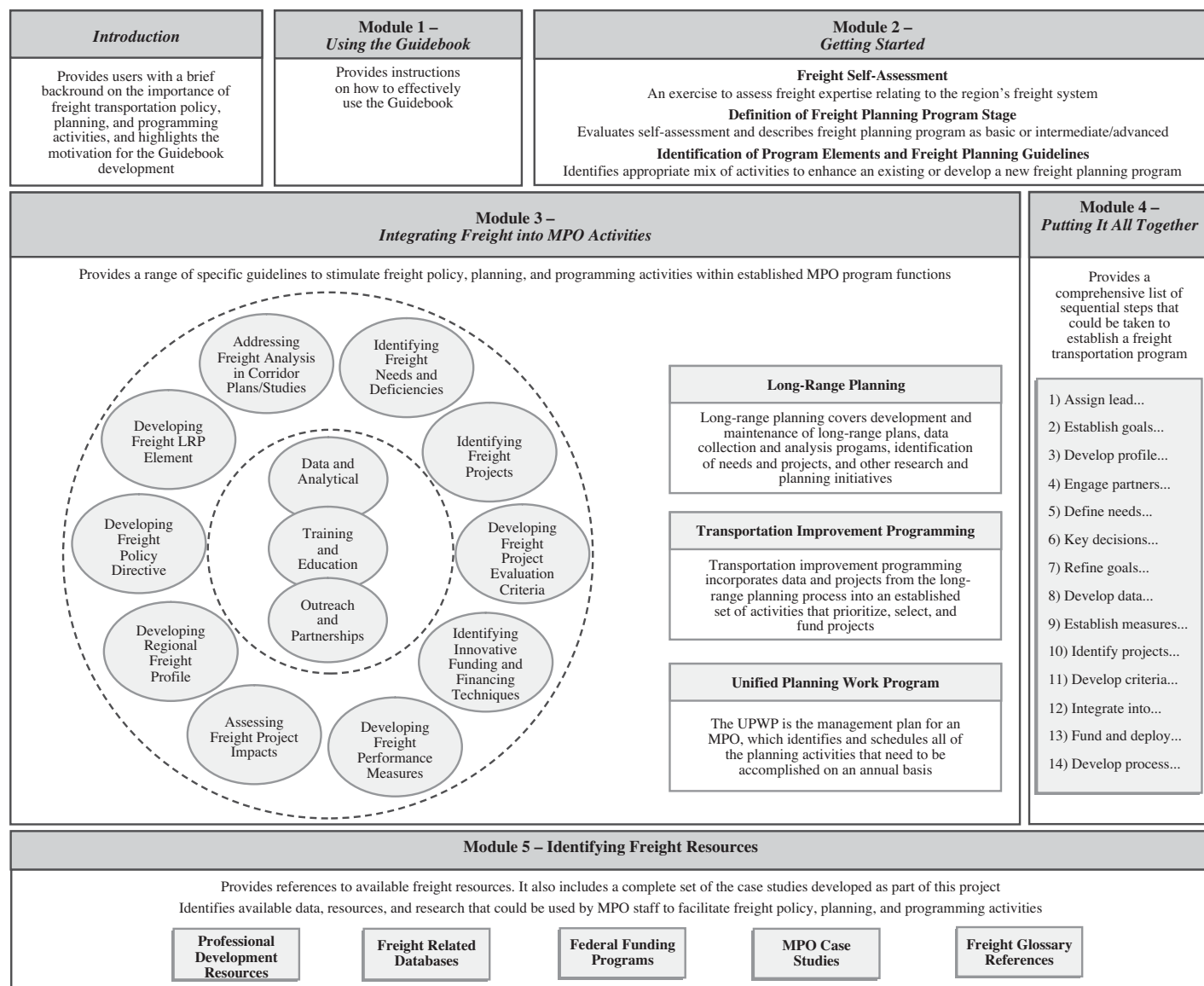


Figure 1.1. Guidebook architecture.

Getting Started

This module has two primary objectives. First, it is designed to help you evaluate the degree to which freight issues and concerns already are being addressed within your transportation planning program. This will allow you to develop a better understanding of where you are starting from in terms of freight planning. The module's second objective is to help you use the results of this evaluation to identify specific freight planning activities that are most appropriate for your region and organization. These objectives are accomplished through three specific steps:

1. **Freight Self-Assessment.** The freight self-assessment is an exercise that will help you assess how well you understand your region's freight system, its characteristics, and its strengths and limitations; assess how well you understand the users of the freight system and their issues and concerns; and identify the types of resources you may have available to develop or enhance your freight planning program.
2. **Definition of Freight Planning Program Stage.** Using the results of the freight self-assessment, you will be able to describe your freight planning program as being in the basic stage or advanced stage. Understanding the state of your freight planning program will help you better identify the specific freight planning activities that you may wish to undertake.
3. **Identification of Program Elements and Freight Planning Activity Guidelines.** The final step is to identify the appropriate mix of planning activities to enhance an existing or develop a new freight planning program and direct you to the component-specific guidelines for freight planning activities that are provided in Module 3.

These three steps are described in the following subsections.

Step 1. Freight Self-Assessment

The freight self-assessment is designed to help you

1. **Know Your Region.** Identify the key freight facilities, industries, freight generators, and consumers; understand their transportation needs; and be cognizant of the current political environment regarding freight in your region (anti-truck, neighborhood complaints, large volume of through traffic, etc.);
2. **Know Your Freight Stakeholders.** Identify the major freight players in your area, including key freight service providers (e.g., trucking companies, steam ship lines, barge operators, railroads, airlines); key freight service buyers (e.g., shippers and receivers); and other stakeholders (e.g., third-party logistics providers, brokers, forwarders); and
3. **Know Your Organization.** Evaluate how your previous planning activities may fit within a freight planning program; evaluate the degree to which freight interests have been integrated into current policy, planning, and programming activities; identify available funding sources; and determine available staff resources for freight planning in terms of time, interest, and expertise.

The purpose of the self-evaluation is to help you ascertain your current level of understanding of freight issues and to document what already has been done by your organization relating to freight transportation. It does not translate into a comprehensive regional freight profile. Rather, the self-evaluation is designed to be completed at a low level of effort and to provide a starting point for developing or enhancing a freight planning program. The following guidelines are provided to illustrate the process:

- **Step 1. Review the Guidebook.** It is important that staff be familiar with the organization and content of the Guidebook because it will provide the overall context of a freight program and will help staff understand the scope of the activities.
- **Step 2. Identify Examples of Existing Freight Program Activities.** It is likely that your MPO has undertaken some activities that will impact freight transportation. These activities may include freight-related research, freight data collection, or improvements to your transportation system that benefit freight movement. This information will determine the response to specific self-evaluation questions as well as determine the existing level of freight activity.
- **Step 3. Identify Personnel to Participate in the Self-Assessment.** It is important that freight planning activities involve a variety of MPO staff across disciplines and incorporate and integrate other local and state freight activities. For example, many state DOTs have someone assigned to freight and intermodal planning; FHWA Division Offices typically have staff that support freight initiatives; and local technical boards and political leaders may have an industry or business background. These individuals can and should contribute to the self-assessment process.
- **Step 4. Review and Prepare Answers to the Self-Assessment Questions.** A series of questions has been developed to guide staff through the self-evaluation process (provided in Tables 2.1 through 2.3). These questions should be used to stimulate dialogue among key personnel to ascertain the current condition of freight transportation policy, planning, and programming activities in the region. Answers should be developed for each question to feed into the next activity. It is not expected that staff have all the answers to these questions. What is important is that the right mix of staff and partners be contacted to determine whether or not the answers are known.

These steps may be a challenging task, but should be completed in a timely manner over a fairly short period of time (2 weeks to 1 month based on the availability of key partners). A limited amount of research and a few meetings or conversations with key partners should provide the necessary level of input.

Table 2.1. Freight self-assessment questions: your region.

1.	Is freight in the news in our area? What are the circumstances? Do they reflect problems/needs or projects/success stories?
2.	What conflicts exist between system users and impacted communities (i.e., at-grade rail crossing issues, noise from airports, highways or trains, high-accident locations, conflicting land uses)? How are the conflicts being mitigated?
3.	Are there any major freight-related problems that are known within the transportation community (public and private)?
4.	How is freight related to the economic base of the community? What percent of our region's jobs are classified as transportation or transportation-related?
5.	Are we a transportation hub? What are the key freight routes serving our region? Do we have a full complement of freight services?
6.	Are there major freight terminals or intermodal facilities in the area? Where are they?
7.	What is the nature of the freight being carried in our region? Does it originate or terminate in our region or is it just passing through?

Table 2.2. Freight self-assessment questions: your freight stakeholders.

1. What agencies are involved in regional transportation policy, planning, and programming activities (Municipalities? Counties? State?)?
2. What are the largest businesses in the region? Do we understand their operations? What mode of transportation do they use? Do they move a lot of freight?
3. Do we understand what materials or products are moving into, out of, within, and through our region?
4. What transportation service characteristics are most important to our shippers and receivers? Efficiency? Safety/Security? Reliability? Competitiveness? Intermodal?
5. Do we know who our service providers are for each mode?
6. Do we understand the concerns of our freight stakeholders? What are their needs? What would they like to see improved?
7. Has the private sector participated in policy, planning, or programming activities to date? Do they understand our process?

Table 2.3. Freight self-assessment questions: your organization.

1. What public sector investments have been made in freight-related facilities in recent years? How significant and/or successful have they been? How were they funded?
2. What freight planning efforts have we already conducted? What resources were used to support these efforts?
3. Are we aware of a regional private sector freight champion who has or could support our freight policy, planning, and programming activities?
4. Are we aware of MPO staff who have expertise or interest in freight planning?
5. Do we have political support from our community leaders?
6. What support have we received or can we expect from our state and federal partners? What is the state-of-the-practice of statewide freight planning? Is our FHWA Division Office active?
7. What kind of freight-related data do we use or have access to?

Step 2. Definition of Your Freight Planning Program Stage

There is no answer key for interpreting the results of the freight self-assessment. Rather, answering the questions provided in Tables 2.1 through 2.3 should give you a better understanding of what you know with regard to freight and where the gaps are in that knowledge, for example:

- **How well do you know your region?** In general, do you already have a good understanding of the freight system? Its performance? The key components for each mode? What areas are the weakest? The answers to these questions will help you identify the technical areas that need specific attention.
- **How well do you know your freight stakeholders?** Can you identify major carriers and shippers? Do you know their key issues? Why they move goods the way they do? The impact they have on your region's economy and transportation system? The answers to these questions will help you identify data collection and outreach areas that need specific attention.
- **How well do you know your organization?** Are you aware of freight-specific initiatives? Can you identify staff members or other partners that have freight expertise? What freight resources were identified? Has your agency conducted any freight-specific elements? The answers to these questions will help you determine the level of freight expertise that exists within your agency, as well as the potential resources that are available.

Table 2.4. Categorization of existing freight program activities.

Freight Planning Stage	Characteristics	Examples
Basic <i>Freight system needs are handled indirectly as part of the overall transportation program activities...</i>	<ul style="list-style-type: none"> • Little or no freight-specific planning activities • Few known freight data sources • Little or no interaction to date with the private sector freight community • Limited knowledge of economic base, industry, or specific freight needs • Freight system is addressed as part of larger transportation projects 	<ul style="list-style-type: none"> • No freight-specific planning activities have been attempted • Area is a recently designated MPO • MPO is beginning to recognize the importance of freight planning, but there is little advocacy for freight planning within the organization, limited resources, and staff is struggling with how to begin a freight planning program
Advanced <i>Freight system needs have begun to receive some attention, however, they have not been fully integrated into the transportation program activities...</i>	<ul style="list-style-type: none"> • Some history of freight-specific planning activities • Some interaction with private sector stakeholders as part of a specific project • Basic understanding of freight system and its regional importance • Freight program elements are beginning to form, leaders are beginning to emerge 	<ul style="list-style-type: none"> • MPO developed a freight profile or intermodal management system after ISTEA, but may not have developed an implementable program • MPO developed a private sector or other such group, but may have since disbanded due to lack of interest • MPO wants to build on some of the ad hoc freight planning activities of the past, but is unsure how to link efforts together into a continuous process

Based on this input, you can likely describe your freight planning program in one of two ways: basic or advanced. Table 2.4 provides a description of these two categories of freight planning. Note that the definitions of basic and advanced are meant to reflect the current practices of small- and medium-sized MPOs to provide Guidebook users with a starting point.

The answers to the questions and your self-categorization will facilitate the selection of appropriate freight activities. This process is described as follows.

Step 3. Identification of Program Elements and Freight Planning Guidelines

Step 3 builds on the results of Steps 1 and 2 to identify the appropriate mix of planning activities to enhance an existing or to develop a new freight planning program. This step will be used to direct you to the component-specific guidelines for freight planning activities that are provided in Module 3.

Though freight planning activities differ from area to area depending on size, industry mix, freight system characteristics, and other factors, there are certain program elements that are included in every successful metropolitan freight planning program. Because each of these individual elements relates to each of the others, they are represented as a spectrum, rather than a collection of individual, sequential steps. The six elements that make up this spectrum are shown in Figure 2.1 and described in more detail following the figure.

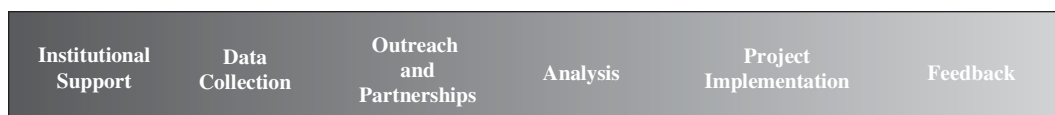


Figure 2.1. Spectrum of freight transportation program elements.

1. **Institutional Support.** MPOs with successful freight planning programs have accepted the responsibility for making freight planning a significant program activity. High-level advocates provide policy direction and allocate existing staff and financial resources to expressly include freight issues as part of the transportation planning processes, including LRTPs and short-range transportation improvement programs. There are very few examples of funding resources that are expressly dedicated to conducting freight planning activities. Rather, freight-related activities must fit within existing MPO programs and responsibilities. Because this often involves the reallocation of existing staff and funding resources, institutional support for conducting freight planning activities is critical.
2. **Data Collection.** MPOs with strong freight planning programs have developed a better understanding of the nature, location, mode, and quantity of freight movements through data collection programs. These data collection programs come in many shapes and sizes: some MPOs purchase or have access to detailed commodity flow data; others rely on publicly available information; still others collect freight-specific data on their own. In all cases, though, data are important to the success of the program by helping establish a regional freight profile and identifying needs and deficiencies.
3. **Outreach and Partnerships.** MPOs with successful freight planning programs provide a relevant means for freight stakeholders to have input into the planning process on a continuous basis. The MPOs with the best freight planning programs are often those that have developed strong relationships with the private sector freight community in their area. Outreach to partner agencies, such as state or local governments, is also important in many areas. Many outreach programs also stimulate and support training and educational activities.
4. **Analysis.** Providing an analytical structure and tools to effectively evaluate the potential impacts of freight investments is critical. Corridor plans, project identification, performance measures, and project evaluation criteria all represent effective analysis tools that allow potential freight projects to flow into the normal MPO programming process, compete for available resources, and, if successful, move into the implementation cycle.
5. **Project Implementation.** Project delivery and implementation are key components in a successful freight program. Successful policy and planning activities lay the ground work for project development. Undertaking projects is where many of the most successful freight programs have built their credibility and created the momentum to mainstream freight into the overall transportation program. A successful freight program incorporates policy, planning, and programming in a cyclical manner as part of a region's ongoing transportation program.
6. **Feedback.** Freight planning, like conventional highway and transit planning, must be continuous and updated on a regular basis. Once integrated into an existing metropolitan transportation planning program, specific freight planning activities should be evaluated to ensure that they are meeting the freight needs of the region. Regularly assessing the effectiveness of the freight planning program to refine existing freight planning activities or to develop new ones will have two important benefits. First, it will help mainstream freight planning within the MPO by incorporating freight issues into traditional planning activities and updates. Second, it will ensure that the MPO's freight planning program is responsive to the dynamic nature of the freight industry.

Figure 2.2 provides a link among all three steps of this evaluation process and can be used to help you identify which specific freight planning activities you may wish to focus on in Module 3.

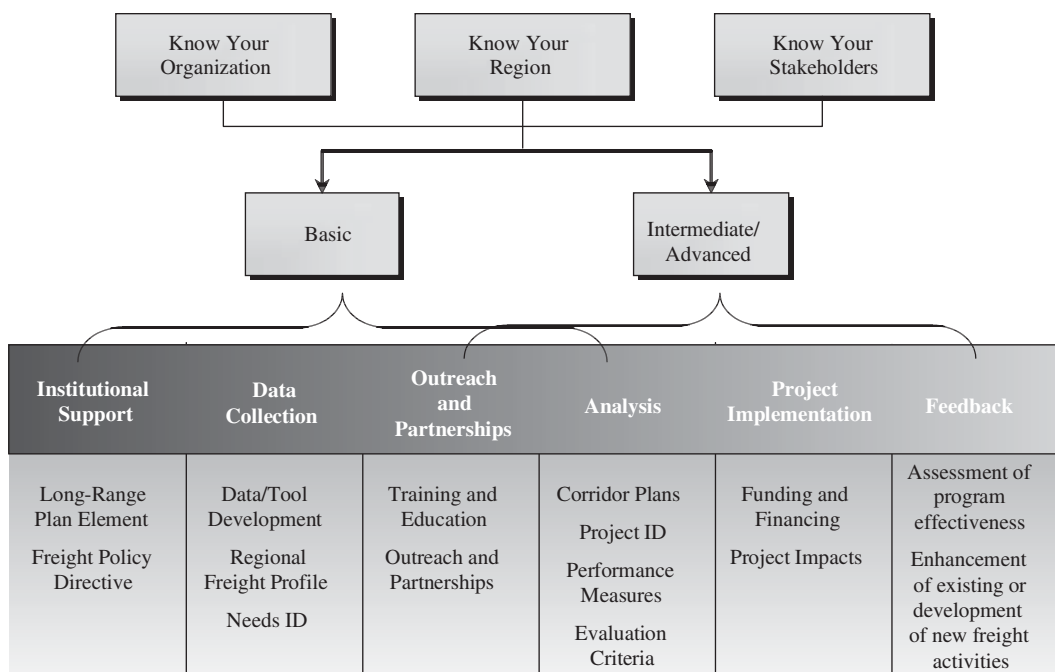


Figure 2.2. Integration of initial freight program evaluation processes.

Those MPOs with basic programs may wish to focus on activities on the left side of the spectrum, such as developing a freight policy directive, investigating available freight training and education resources, developing a regional freight profile, or conducting a freight needs and deficiencies analysis. These types of activities would help an MPO with a basic freight planning program better understand the freight characteristics of the region and where the freight transportation system is failing to meet the needs of users. Armed with this information, the MPO can make more informed decisions about where to and how much to invest.

Those MPOs with more advanced freight planning may wish to focus on activities associated with the right side of the freight planning spectrum. These MPOs may already have developed a regional freight profile and engaged the private sector and now need to take the next step in the process by developing more comprehensive analysis techniques and tools; reinvigorating private sector outreach efforts; or funding, financing, and implementing freight improvement projects. The activities associated with the right side of the spectrum can help these MPOs take informal freight planning activities and turn them into a more comprehensive program, helping to mainstream freight within the MPO.

At this point, an MPO is ready to identify the initial freight planning activities. Based on these activities and a cursory review of Module 3, staff should identify a road map of planned activities. This road map could consist of developing policy language and a regional freight profile to lay the foundation of a freight program; or it could consist of identifying and evaluating specific freight projects to feed the LRP and TIP processes. It all depends on the current level of sophistication and the perceived regional needs.

It is important that the Guidebook users realize that these initial activities represent the first activities for developing an ongoing and integrated freight program. MPO needs will vary, as will the levels of analytical sophistication. However, it is imperative that every MPO have the ultimate goal of establishing freight as part of its transportation program at a level that meets its regional stakeholders' (public and private) needs. Modules 3 and 4 will provide the specific guidelines and resources available to support MPO staff in this process.

Integrating Freight into MPO Activities

This Guidebook has introduced the importance of freight policy, planning, and programming activities and walked users through a self-assessment to establish existing needs and preliminary freight planning program direction. Module 3 helps users develop or enhance an effective freight planning program by defining specific guidelines to carry out freight program development activities.

The most significant challenge for users will be to select the appropriate mix of freight planning activities to meet their initial objectives. Many of the freight planning activities defined in this module are closely integrated and should be combined to effectively develop an integrated freight planning program. For example, a regional freight profile supports the identification of freight needs and deficiencies, which feeds information and data into the freight element of a long-range plan (LRP). Very few of these freight planning activities exist in a vacuum, so it is critical that users understand how these specific activities fit within the context of their existing transportation planning program.

As with other disciplines, freight planning activities should ultimately feed into and integrate with the overall local or regional transportation program. In fact, the success of freight policy, planning, and programming activities is directly linked to the ability to successfully integrate all of the activities defined in the Guidebook into the transportation program. For example, pedestrian, bike, transit, and roadway needs are planned, prioritized, and funded within a metropolitan planning organization's (MPO) long-range transportation planning and programming process. For freight issues to be similarly mainstreamed within a metropolitan transportation planning process, freight must become part of the following three areas:

1. **Long-Range Planning.** Long-range planning includes development and maintenance of LRPs, data collection and analysis programs, corridor plans and analyses, and stand alone research and planning initiatives. Integrating freight into these activities is a fundamental first step for an MPO because it includes many of the initiatives that practitioners begin with, such as development of a freight study or any of the specific technical elements that support an overall study (e.g., truck volume maps, freight system map, needs identification, outreach, land use, modeling). Most of the activities can be undertaken at low or high cost/efforts.
2. **Transportation Improvement Programming.** Transportation improvement programming is a more specific group of activities. Every 1 to 2 years, the proposed improvement projects, plans, studies, and other activities expected to occur over the next 3 to 5 years are taken from the LRP and entered into the programming process, which culminates in the development of a TIP and statewide Transportation Improvement Program (STIP). TIPs and STIPs are fiscally constrained, so each project identified must include a cost estimate and an anticipated funding source. To aid in the development of these estimates, many potential projects undergo an initial assessment not only of their scope, but also of their anticipated environmental impacts.

Once the STIP is approved by FHWA and FTA, improvement projects can move to the implementation stage.

3. **UPWP.** The UPWP is the management plan for an MPO. It identifies and schedules all of the planning activities that need to be accomplished on an annual basis. It integrates policy, planning, and programming activities. It includes the activities previously defined on an annual work program cycle, as appropriate. It is critical that freight-related activities be integrated into the UPWP development process, because this is where the actual allocation of staff and funding resources occurs.

Finally, it is important for users to keep in mind that freight planning should be entered into as an evolutionary and dynamic process that provides MPO staff and the regional partners with the opportunity to build their knowledge and expertise iteratively over time. Therefore, as initial freight planning activities are identified, it is helpful to keep in mind what the complete process might look like if the program was developed sequentially, from start to finish. Module 4 provides a step-by-step list of activities developed in support of the Guidebook to illustrate a comprehensive freight program. This section also provides users with a case study example of a freight program developed in this way.

Overview of Freight Policy, Planning, and Programming Guidelines

Specific guidelines are provided for each of the 13 freight planning subject areas listed in Table 3.1. Each section contains the following five subsections:

- **Overview.** The subject area is described, including the reason it is important and the approach the Guidebook takes to address it.
- **Basic versus Advanced Approach.** For each subject area, users are provided with basic and advanced approaches for implementation. This section briefly describes the distinction between the two.
- **Key Activities.** This section presents the actual guidelines for the basic and advanced approaches. For each approach a summary of key issues is given. A “snapshot” of information is also provided. These snapshots contain information on the estimated level of effort, technical complexity, and data, outreach, and training needs related to each set of guidelines. These snapshots enable users to quickly scan basic and advanced approaches to find the approach that best suits their needs and resources. Table 3.2 shows the information provided in these snapshots.
- **Common Issues and Potential Solutions.** This section describes some of the key issues or challenges that users will face while implementing the guidelines and provides some potential solutions.

Developing a Freight Policy Directive

Overview

The freight policy directive represents the activities required to establish the content and direction of an MPO’s freight program. As part of these activities, MPO staff will work to develop a mission statement, goals, objectives, and policies to guide freight program development. At some MPOs, development of policy components is controlled by the governing boards, who rely on staff to support and implement the policies after they have been adopted. In other locations, the process is more iterative between staff and board members. These components provide a framework for how funding and staff resources will be allocated to conduct freight planning activities

Table 3.1. Description of guidebook subject areas.

Subject Area	Description
Freight Policy Directive	<ul style="list-style-type: none"> The policies set by an MPO drive the direction and content of its transportation program and can provide a framework for how staff and funding resources will be allocated to conduct freight planning activities. The guidelines provided in this section address the development and inclusion of freight-specific goals, objectives, and policies in the transportation program.
Regional Freight Profile	<ul style="list-style-type: none"> A freight profile provides a description and analysis of the existing conditions in a region. It functions as the key data source for many other activities and provides educational material for staff, partners, and the public. The guidelines provided in this section define the elements and activities necessary to develop a regional freight profile.
Freight Needs and Deficiencies	<ul style="list-style-type: none"> The identification of needs and deficiencies specific to freight operations is a critical element in the planning process. This activity provides the data and information necessary to begin to identify and develop potential improvement projects. The guidelines in this section define the processes that can be used to identify freight needs and deficiencies.
Freight LRP Element	<ul style="list-style-type: none"> The projects selected and implemented by an MPO are first identified and defined as part of its LRTP. It is critical that freight considerations be integrated into this process. The guidelines provided in this section define ways to develop a freight-specific element within this process.
Freight Project Identification	<ul style="list-style-type: none"> Once the needs and deficiencies have been defined, specific projects must be identified and developed. In many instances, freight-specific elements can be integrated into other transportation projects, such as a roadway corridor study as part of one or more alternatives. Other projects may be exclusively developed to address freight needs. The guidelines provided in this section define the processes available to identify freight-specific projects.
Freight Analysis in Corridor Plans/Studies	<ul style="list-style-type: none"> Corridor-specific initiatives represent major investment decisions by MPO staff and partners, including detailed alternatives analysis. To effectively address regional freight mobility issues, it is important to include freight needs as part of these activities. The guidelines provided in this section define ways to effectively integrate freight into the standard activities.
Freight Project Evaluation Criteria	<ul style="list-style-type: none"> Once projects have been identified and defined, it is critical that there be a process that allows staff to evaluate each project on its own merits and compare it with other freight projects and other transportation projects. The results of this activity facilitate the advancement of the project into an MPO's TIP. The guidelines in this section provide ways to develop and use freight project evaluation criteria.
Freight Performance Measures	<ul style="list-style-type: none"> Performance measures have become a critical element for many transportation planning activities. Understanding how well a program works or how effective a project is at meeting its goals is necessary to ensure staff is investing in projects and processes that enhance the existing system. The guidelines provided in this section define processes for evaluating freight projects using performance measures.
Funding and Innovative Financing Techniques	<ul style="list-style-type: none"> Funding is an issue for all MPOs and taking on a new area, such as freight planning, without a dedicated funding source further complicates this issue. There are opportunities available to fund freight projects, such as CMAQ, bonds, and other public-private partnerships. The guidelines in this section provide options for identifying and accessing the types of funding opportunities that exist for freight transportation investments.
Freight Project Impact Assessment	<ul style="list-style-type: none"> Freight projects, like all other transportation projects, must take into consideration the impacts they have on local and regional communities. These include factors such as economic development, the environment, environmental justice, and land use/permitting. The guidelines provided in this section define methods for conducting these assessment activities.
Data and Analytical Tools	<ul style="list-style-type: none"> Data and analytical tools feed all transportation policy, planning, and programming activities. They provide the information and processes necessary to develop profiles, identify, and evaluate solutions, monitor progress over time, and educate partners. Specific references to data and analytical tools are provided within each subject area. The guidelines provided in this section define the effective use of data and tools and reflect the need for integration with others.
Training and Education	<ul style="list-style-type: none"> Training and education are critical elements of effective freight transportation planning. Many staff, partners, and the public have limited experience in the area of freight transportation and related needs and investments. To build support for and expertise in freight transportation activities, it is important to include training and education in each activity and as a stand alone process. Specific references to training and education are provided within each subject area. The guidelines provided in this section define the overall training and education activities.
Outreach and Partnerships	<ul style="list-style-type: none"> Outreach and partnerships, in part, are directly related to education. These activities focus on data collection, dissemination of information, and development of partnerships. Effectively engaging partners and impacted communities is a critical element, because it provides the opportunity to build support and mediate conflicts. Specific references to outreach and partnerships are provided within each subject area. The guidelines provided in this section define the overall training and education activities.

Table 3.2. Sample freight planning snapshot.

Activity:	<ul style="list-style-type: none"> One of the 13 subject areas
Activity Type:	<ul style="list-style-type: none"> Policy, Planning, or Programming
Level of Effort:	<ul style="list-style-type: none"> The relative level of effort (staff time, cost, etc.) is provided for each individual or group of steps or actions. The level of effort is described as low, medium, or high. Each of these rankings is defined to provide an order of magnitude estimate. Please note that the level of effort will likely vary based on the resources, staff, and experience of each MPO. Low, Moderate, or High
Technical Complexity:	<ul style="list-style-type: none"> The technical complexity of an activity is an important element. It can directly impact training requirements, use of more elaborate data or tools, and require consulting assistance. As such, each guideline or group of guidelines is categorized with an order of magnitude ranking of low, medium, or high. Low, Moderate, or High
Data/Analytical Tool Needs:	<ul style="list-style-type: none"> The data and analytical tool requirements for a specific guideline represent critical components and are identified for each guideline or group of guidelines. Low, Moderate, or High
Outreach/Partnerships Needs:	<ul style="list-style-type: none"> Outreach and partnership activities are often important elements of specific activities and are identified for each guideline or group of guidelines. Low, Moderate, or High
Training/Education Needs:	<ul style="list-style-type: none"> Training and education activities can impact other activities and are identified for each guideline or group of guidelines. Low, Moderate, or High
Related Activities:	<ul style="list-style-type: none"> Identifies key policy, planning, and programming activities that impact or are impacted by this subject area.

and can guide specific freight planning activities undertaken by MPO staff. The policy directive should accurately reflect the level of effort staff anticipates giving to freight policy, planning, and programming activities. In addition, the freight policy directive should be developed to be consistent with and complementary to the MPO's existing transportation plans and policies. The purpose of the freight policy directive is to ensure that MPO leadership and staff agree upon the direction of freight planning program and to ensure that the region's transportation system adequately meets the needs of industry while minimizing impacts on other stakeholders.

Basic versus Advanced Approach

The development of an effective freight policy directive can be accomplished in a variety of ways. Initial work in this area can be accomplished at a basic level. This can consist of incorporating the term *freight* into existing transportation policy language to encourage an increased recognition and sensitivity to freight operations. The basic approach focuses on calling out both passenger and freight within established goals and objectives, as appropriate.

A more advanced approach could involve more extensive outreach and focus groups with a diverse set of freight stakeholders to develop a set of freight-specific policies. The advanced approach focuses on the development of goals and objectives that specifically address regional freight issues. These would become additional goals and objectives or represent a subset of goals and objectives that feed into and support the overall program.

Key Activities

The development of a freight policy directive should be undertaken at the onset of freight transportation program development. The goals, objectives, and policies that will be developed will impact all subsequent freight activities. As part of this process, MPO staff will work internally with staff that has long been involved in policy development as part of long-range planning activities and the overall MPO mission. In addition, it will be necessary to reach out to political and technical leaders to build support for freight planning. More advanced activities will include outreach to community and industry partners. The overall objective of this activity should be to successfully integrate freight language into the established transportation program to ensure long-term investment decisions focus on a balanced, multimodal transportation system that meets the needs of both passenger and freight movements.

Basic Approach

Activity	• Developing a Freight Policy Directive—Basic
Activity Type	• Policy
Level of Effort	• Low
Technical Complexity	• Low
Data/Analytical Tool Needs	• Low. Requires the collection and review of existing policy language.
Outreach/Partnership Needs	• Low. Requires internal staff coordination.
Training/Education Needs	<ul style="list-style-type: none"> • Low. Requires staff to begin building basic freight knowledge; should explore resources available from FHWA. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Provides foundation for all subsequent freight planning activities.

Key activity: Incorporate freight-specific language into existing transportation program language.

Step 1. Review existing LRP goals, objectives, and policies. Staff should review existing long-range planning documents to better understand how freight already may be incorporated within the MPO's goals, objectives, and policies. This review of existing policy language will allow staff to determine existing levels of freight sensitivity.

Step 2. Develop freight-specific language. Based on the Step 1 review, staff should identify opportunities to include freight-specific references. This could consist of calling out “freight” in areas of overall transportation system performance, such as mobility, congestion, and so forth. For example, an MPO goal of “Improve mobility” could be changed to “Improve mobility of people and goods.”

Step 3. Incorporate freight language into LRP as amendment or as part of next update. Once the freight language has been drafted, staff will need to build consensus and support for the modifications. The freight enhancement language can be integrated as an amendment or as part of the next scheduled LRP update.

Advanced Approach

Activity	• Developing a Freight Policy Directive—Advanced
Activity Type	• Policy
Level of Effort	• Moderate to High

Technical Complexity	<ul style="list-style-type: none"> • Moderate
Data/Analytical Tool Needs	<ul style="list-style-type: none"> • Moderate. Requires review of existing policy language; collection of data to support development of new language.
Outreach/Partnership Needs	<ul style="list-style-type: none"> • Moderate. Requires discussions with private sector freight stakeholders to facilitate development of freight policies.
Training/Education Needs	<ul style="list-style-type: none"> • Low. Requires staff to begin building basic freight knowledge; should explore resources available from FHWA. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> • Provides foundation for all subsequent freight planning activities.

Key activity: Develop freight-specific goals, objectives, and policies for inclusion in the existing transportation program.

Step 1. Establish outreach program (politicians, general public, and industry) to gather input from key decision-makers and system users. To develop freight policy language that adequately reflects a region's needs, it is necessary to gather input from a full range of transportation system stakeholders, particularly the private sector freight community, who are the primary users of the freight system. Guidance on how to engage the private sector is provided later in this module (see section on Outreach and Partnerships).

Step 2. Develop freight-specific goals, objectives, and policies. Based upon the input from key stakeholders, specific language can be developed to enhance and expand current policies. The following are examples of freight policy statements:

- Enhance connections between the current modal networks to improve the functioning of the overall system;
- Manage the heavy demands placed on the regional infrastructure, by balancing the needs of freight and passenger traffic;
- Remove specific constraints that act as bottlenecks in the modal networks, such as clearance restrictions on roadway and rail links;
- Expand goods access to key regional demand centers through improved freight management, operations, and freight-friendly infrastructure;
- Improve the array of transportation options available to regional freight users; and
- Ensure that the regional transportation system is safe and secure for both passenger and freight traffic.

Step 3. Conduct focus group to build consensus and refine. Once the freight-specific language has been drafted, it is important to take it back to the impacted communities to ensure buy-in and support. This focus group could be formal (e.g., a public meeting) or informal (e.g., visits to individual stakeholders or stakeholder groups).

Step 4. Incorporate or integrate material into overall transportation program. The final step in the process is to formally adopt the new language into the LRP and other agency policy documents. This incorporation will ensure that the language is reflected in transportation decisions, and that it is updated regularly.

Common Issues and Potential Solutions

While the development of freight policy material relies on fairly straightforward actions, there are a few challenges that most MPOs will have to deal with, such as building support both internally and externally and engaging private partners. The following summarizes these challenges and provides some potential solutions.

Common Issue	Potential Solution
<p>Limited freight expertise by technical staff. Most MPOs have technical advisory committees that advise and support MPO initiatives. In many instances, building support for freight inclusive language in the transportation program will be challenged by lack of experience in this area, as well as the overriding sentiment in many locations that freight is handled by the private sector.</p>	<p>Investigate training and education opportunities. There are a number of training and education opportunities available to MPO staff to enhance understanding of freight, its common issues and concerns, and how it can be more effectively integrated within a transportation planning process. See Module 5 for a list of training and education resources.</p>
<p>Political opposition. MPO leadership is often driven by local politicians who work to improve the transportation system for their constituents. The general public's aversion to heavy industry and truck traffic often encourages politicians to respond in a restrictive manner toward freight as opposed to promoting freight friendly programs.</p>	<p>Develop champions and advocates for freight and freight planning. Few local decision-makers and general public members understand the link between efficient freight movements and quality of life. The selection of fresh fruits and vegetables in the middle of winter; the ability to have a package delivered anywhere in the country overnight; and even the coal, oil, and natural gas that heat our homes and power our cars all depend on an efficient, intermodal freight transportation system. In addition, an efficient freight system is often a key component of business expansion and relocation decisions. Articulating the positive benefits of freight and the link between freight and economic development can help create advocacy for freight planning.</p>
<p>Stakeholder participation. Historically, it has been a challenge to engage the private sector given the difference in planning horizons and a focus on operations versus long-term planning, and the time commitments required for effective participation.</p>	<p>Develop outreach strategies. There are a number of strategies that can be employed to more fully engage the private sector freight community. The Outreach and Partnerships section in this module describes some of the more successful strategies.</p>

Developing a Regional Freight Profile

Overview

A regional freight profile is essentially a primer for understanding a region's freight transportation system. The regional freight profile typically summarizes the geographic area, such as its land mass and the percentage of land devoted to and people employed in different types of industries (e.g., agriculture, manufacturing, and service). It also includes a high-level overview of the transportation infrastructure, including rail, roadway, ports, airports, and pipelines, noting the key features and relative importance of each to the region. Population centers within the region are usually identified in regional, state, and national terms. Many regional profiles also identify the natural resources in an area that contribute to its base freight transportation needs. Examples include natural deposits of oil, coal, gypsum, and timber, as well as water resources such as bays and rivers. These resources typically drive a number of primary industries associated with leveraging the resources. The sources and causes of any seasonal variations in freight volumes are identified along with an indication of the importance of such swings within the local economy and its impact of freight movement within the area.

The types of information captured and provided in a regional freight profile are relatively consistent between MPOs of any size, differing primarily in terms of information depth and complexity as dictated by area specifics. For example, a small MPO that is located in an area that is distant from any major highway system and lacks significant air, rail, or water freight transportation

networks would have a less complex regional freight profile than a larger MPO that has a full range of modal options and networks. However, the process and fundamental elements necessary to develop a regional freight profile would be similar.

Basic versus Advanced Approach

The major distinguishing characteristics between preparing a basic versus an advanced regional freight profile involves the effort expended in two primary areas: (1) the breadth and extent of stakeholder involvement and (2) the amount of freight data captured and analyzed. Basic regional freight profiles tend to involve less stakeholder involvement (in terms of number and extent of stakeholder participation) while capturing or using fewer sources of freight information. More complex or advanced efforts to create regional freight profiles involve significant stakeholder participation and expanded capture of or use of freight data.

Some correlation exists between the effort required to update or produce a regional freight profile and the relative size of the MPO or the complexity of its transportation network. Accordingly, small MPOs or MPOs in regions dominated by single industries or with fewer transportation modes and options (and with lower volumes of freight traveling through the region without stopping) should be able to produce a satisfactory profile with less stakeholder involvement or data collection than a larger MPO or one with a more diverse and complex freight system. In practice, however, the detail and analysis contained in a regional freight profile tends to reflect the resources available, with additional resources resulting in higher levels of stakeholder involvement and data collection and analysis. MPO staff is encouraged to devote the resources necessary to develop a comprehensive and accurate regional freight profile because it represents the foundation for subsequent freight planning efforts.

Key Activities

The freight summary for the region should be organized around three key components. The first component is the freight transportation infrastructure. This consists of the physical and operational attributes available for each modal system, such as key routes and facilities, industry use, physical condition, and traffic volumes. The second component is a commodity flow summary that describes the tonnage and value of freight shipments moving into, out of, through, and within the region. The third element of the freight system profile focuses on incorporating other transportation-related factors, such as economic development, land-use, safety, and environmental impacts. The combination of these components provides an illustration of what the regional freight system is, how it is being used, and how it impacts the community (and vice versa).

The regional freight profile should identify major freight service providers (motor carriers, railroads, airports, etc.), distributors (warehouses, port terminals, etc.), and their geographic locations. Centers of motor carrier break-bulk and intermodal freight operations need particular attention and notation because they impact traffic operations within a region somewhat differently than other freight operations. Information on the freight volumes being transported through a region can be more challenging to capture. The MPO survey conducted as part of this project identified the use of truck counts as the most common means of capturing this information, followed (in descending order) by the use of Highway Performance Monitoring System (HPMS) data, origin-destination surveys, and commodity flow surveys (CFSs). Other sources included FHWA's Freight Analysis Framework (FAF), air cargo data, and Reebie TRANSEARCH commodity flow data. Much of the basic information needed to develop a regional freight plan and supporting documentation is available from local government offices, libraries, chambers of commerce, and economic development offices.

MPOs should engage regional freight stakeholders in the process of creating the regional freight profile as part of the holistic approach to involving and engaging the freight community. These stakeholders can provide valuable input on historical, current, and future freight and economic trends that have important competitive implications for the region. Local traffic clubs¹ and supply-chain logistics organizations² provide outreach sources that can be particularly valuable in terms of identifying local industry partners. Local chambers of commerce and local economic development organizations also provide access to economic data sources as well as identify local business leaders.

Basic Approach

Activity	• Developing a Regional Freight Profile—Basic
Activity Type	• Planning
Level of Effort	• Moderate
Technical Complexity	• Low
Data/Analytical Tool Needs	• Moderate. Requires collection of available data and limited stakeholder outreach.
Outreach/Partnership Needs	• Moderate. Requires completion of a limited number of interviews and contact and engagement of local freight organizations.
Training/Education Needs	<ul style="list-style-type: none"> • Low. Requires staff to begin building basic freight knowledge and become familiar with available data; should explore resources available from FHWA. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• LRP Freight Element, Freight Analysis in Corridor Plans and Studies, Freight Needs and Deficiencies.

Key activities: Develop a high-level overview of the regional freight system.

Step 1. Conduct limited outreach to key regional freight partners. Identify and meet with a small number of key freight stakeholders to begin to build an understanding of the local freight system, how it is used, and what are its weaknesses or bottlenecks. This can often be accomplished via phone calls or site visits to individual stakeholders.

Step 2. Develop freight system infrastructure maps. Using available MPO, state, and federal resources, develop a freight system map of the region. This should include major roadways, intermodal connectors, railroads, intermodal terminals, port facilities, and airports. Any readily available information on additional load centers (such as warehouse and distribution centers or trucking terminals) should be included.

Step 3. Review aggregate commodity flow data. The FAF and CFS are available on-line from FHWA and Bureau of Transportation Statistics (BTS), respectively. They provide commodity flow profiles for state and National Transportation Analysis Regions (NTAR). Although these geographic levels are much larger than an MPO region, in lieu of more costly data, they can provide general characteristics for the region, such as key commodities, mode shares, and inbound-outbound splits.

Step 4. Summarize key socioeconomic data. Review key regional trends in employment and population growth. Many MPOs already maintain these data. For the freight profile, they should

¹Such as Delta Nu Alpha, a transportation and logistics society, <http://www.deltanualpha.org>.

²Such as APICS, the Association for Operations Management, <http://www.apics.org>, or the Council of Supply Chain Management Professionals, <http://www.cscmp.org/>.

use types of employment and overall growth throughout the region to monitor freight transportation needs in the future. Many of these data are also available from (a) federal sources, such as the Census Bureau or Bureau of Economic Analysis, (b) state sources, such as state departments of labor and employment, and (c) universities.

Step 5. Develop high-level regional freight profile. Based on these steps, MPO staff should develop a summary of the material to be used to describe the regional freight system. This can serve as the beginning of a freight program and a place holder for a more comprehensive LRP freight element.

Advanced Approach

Activity	• Developing a Regional Freight Profile—Advanced
Activity Type	• Planning
Level of Effort	• High
Technical Complexity	• Moderate
Data/Analytical Tool Needs	• High. Requires collection or purchase of new regional freight data; significant outreach to private partners; review of region's travel demand model.
Outreach/Partnership Needs	• High. Requires completion of interviews, focus groups, and surveys; development of freight technical advisory committee.
Training/Education Needs	<ul style="list-style-type: none"> • Moderate. Requires staff to build on basic freight knowledge, particularly relating to available data, analysis, and stakeholder outreach; should explore resources and training available from FHWA and National Highway Institute (NHI). • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• LRP Freight Element, Freight Analysis in Corridor Plans and Studies, Freight Needs and Deficiencies.

Key activities: Develop a comprehensive regional freight profile.

Step 1. Conduct outreach to private industry serving the region (see Data and Analytical Tools section in this module). MPO staff should identify and interview key regional freight partners to collect input on the freight system and its operation.

Step 2. Develop infrastructure and service profiles for each mode of transportation in the region. Summarize available data into a comprehensive description of the regional truck, rail, intermodal, air, water, and pipeline freight networks. This will include information on key routes, carriers, terminals, and service characteristics. A global information system (GIS) will be used to illustrate these modal systems, based on available databases.

Step 3. Analyze the commodity flow data. Commodity flow data are available from several sources. The most disaggregate data are provided at cost from Global Insight, Inc. (TRANSEARCH). The BTS also provides data via the CFS. MPO staff must determine the best resource for the region based on available funds and the overall complexity of their system. A detailed commodity flow analysis would summarize the following:

- Overall volume and value of freight moving into, out of, within, and through the region;
- Major domestic trade partners;
- Key commodities moving into, out of, within, and through the region; and
- Modal shares for freight moving into, out of, within, and through the region.

Step 4. Identify and analyze international trade data. Review and analyze the international trade data available from border crossings, air cargo operations, and seaports.

Step 5. Describe examples of regional logistics patterns. It is important to understand what is moving, how it is moving, why it is moving in that way, and what the operational constraints and bottlenecks are for industries based in your region. MPO staff should work with private partners to document logistics patterns for key regional industries to illustrate the types of decisions made on a daily basis to operate successfully in a competitive market. The following highlights the types of questions that need to be answered to accomplish this goal:

- **General Business Description.** Describe your primary business. What product or service do you provide? Why are you located here? Where do you have other facilities? How many employees do you have? Do you manage your own transportation and logistics? Do you own your transportation equipment?
- **Describe Inbound Movements.** What are the primary raw materials brought in for production? Where are your suppliers located, geographically? Does your selection of suppliers depend on their business location? How do you place orders? Is it technology driven (automated)? What modes are used for delivery of these materials? Why do you use these modes? Are your materials mode-specific or dependent? How many truck loading/unloading docks do you have? Do you have a rail siding? What volume of freight do you receive weekly or monthly (by mode)? What service requirements do you have for these shipments? Do you have any penalties for late or missed shipments?
- **Describe Production Process.** Is your manufacturing process automated? If so, what system are you using? How important is timeliness of delivery to your production lines? How do you ensure reliable delivery? Do you require service contracts? Do you maintain an inventory of raw materials? If so, how many days worth? If not, are you operating on just-in-time? Have you ever had to shut down a production line because of a missed shipment? How long does a production run take? Are your orders customized or do you make standard products? Do you maintain an inventory of finished products? If so, how many days worth? Do you have your own warehouse space?
- **Describe Outbound Flows.** What are the primary products manufactured or distributed? How do customers place orders? Is it technology driven (automated)? What modes are used for delivery of these products? Are your products mode-specific or dependent? How many truck loading/unloading docks do you have? Do you have a rail siding? What volume of freight do you send out weekly or monthly (by mode)? What service requirements do you have for these shipments? Do you have any penalties for late or missed shipments?
- **Identify Specific Operational Issues.** What are the strengths of the region's transportation infrastructure? What are the weaknesses of the region's transportation infrastructure? How could the existing infrastructure be operated differently to improve your operations? How could the existing infrastructure physically be changed to improve your operations? Can you identify specific needs?

Step 6. Work with MPO modeling staff to develop truck trip estimates for the region. Key truck corridors can be identified using a combination of model assignments and truck counts. Understanding truck travel patterns helps staff identify regionally significant freight roadways as well as prioritize future roadway improvement projects. Based on what is available, it may be necessary to use the Quick Response Freight Manual to estimate truck trips generated or attracted by traffic analysis zones to help identify key freight roadways.

Step 7. Review the impact of other transportation-related factors. Data available on components of the community that impact freight transportation should be analyzed. This

Chittenden County MPO—Developing Regional Freight Profile

The Chittenden County MPO, MPO for Burlington, Vermont, provides an excellent example of how to develop a freight profile. This MPO developed a comprehensive regional freight profile using consulting resources and through close coordination with a similar statewide effort underway by the Vermont Agency of Transportation (VAOT).

The profile included descriptions and maps of the freight infrastructure and its operational characteristics; an economic and demographic summary that described employment and population trends; a commodity flow analysis that summarized volume and value of freight moving in the region, the mode splits, and key trade partners. In addition, the MPO benefited from shipper/receiver and motor carrier mail out surveys, and truck driver origin-destination intercept surveys conducted by VAOT. Interviews also were conducted with regional shippers and carriers; data collected were used to describe supply chain management practices.

In addition to the data and analyses, the MPO organized a Freight Technical Advisory Committee which met several times throughout the project. Data and analyses were presented to this group and their feedback and input were included in the development of the freight profile.

The freight profile was a backbone of the overall freight plan being developed. The plan included the full profile; in addition, it summarized findings and conclusions and presented recommendations for further freight program development.

For a more detailed review of the profile, readers are referred to the following link on the MPO's web site:

http://www.ccmpo.info/library/freight/chitt_freight_prof_1.pdf

will include basic sociodemographic trends (population, employment, etc.), land-use patterns, environmental impacts of new projects, and safety concerns with existing systems and proposed projects.

Step 8. Develop the regional freight profile. The above steps provide the data and findings necessary to develop a regional profile. This should consist of GIS-based maps of the infrastructure and operations, descriptions of existing freight operations, and a summary of key sociodemographic and land-use development patterns. This profile should be used to support other related activities, such as an LRP freight element.

Common Issues and Potential Solutions

The development of a regional freight profile can encounter several challenges. The first obstacle is that many MPO staff will be undertaking this activity for the first time. This requires that staff take the initiative to search out available data sources and take advantage of education and training opportunities, as well as examples of best practices available from counterparts in other MPOs. Other challenges include availability of data, funding for freight data, and engaging private sector partners. The following summarizes the key challenges and offers potential solutions.

Common Issue	Potential Solution
<p>Lack of freight expertise. Existing staff expertise will likely not cover all the technical areas addressed by a regional freight profile. Staff members will need to familiarize themselves with the resources outlined in Module 5 of the Guidebook, as well as the data that are available locally.</p>	<p>Investigate training and education opportunities. There are a number of training and education opportunities available to MPO staff to enhance understanding of freight, its common issues and concerns, and how it can be more effectively integrated within a transportation planning process. Chittenden County MPO worked closely with its state partners and since completing the study has attended freight training provided by FHWA through NHI.</p>
<p>Lack of freight data. Data availability is one of the most significant challenges of freight transportation planning. Much of the data are considered proprietary by private partners; in addition, many publicly available sources are aggregated to levels above an MPO region. Furthermore, available resources are often not available to conduct extensive data collection, such as truck driver origin-destination surveys; or to purchase private data, such as TRANSEARCH commodity flow data. This can limit the completeness of a regional freight profile.</p>	<p>Investigate freight data sources. There are a number of publicly available freight data sources and data techniques that can be useful to metropolitan freight planning efforts. State DOTs, FHWA, and other agencies are potential sources of freight data that can be used in the development of a regional profile. In Chittenden County's case, the state DOT provided county-level commodity flow data at no cost to the MPO. In addition, the MPO benefited from mail out surveys to motor carriers and shippers and receivers, as well as origin-destination truck driver surveys conducted by the state.</p>
<p>Private partner participation. Private sector partners represent a unique source of data, both in qualitative perceptions of the system, as well as quantitative volume information. However, many such partners are reluctant to share their data for fear of losing their competitive advantage. This issue requires building trust with private industry.</p>	<p>Develop outreach strategies. There are a number of strategies that can be employed to more fully engage the private sector freight community. Chittenden County MPO developed and maintained a freight advisory committee (FAC) throughout the development of its freight plan.</p>

Identifying Freight Needs and Deficiencies

Overview

The identification of freight needs and deficiencies is a planning activity that identifies gaps between existing freight system conditions and capabilities and the projected freight transportation needs for the area. This is a critical element of an MPO's transportation program, because it feeds the identification, development, and implementation of improvement projects.

The process of identifying freight needs and deficiencies is driven by data collection and analysis and stakeholder input. Regional operational conditions (level of service [LOS] on regional roadways, congestion, high-accident locations, inadequate roadway geometrics, modal capacity constraints, etc.) are used to establish the areas where the needs or deficiencies may be most prevalent. Most MPOs already will have access to data specific to roadways, although staff may not have reviewed these data from the perspective of freight operations. Condition of intermodal connectors, access to industrial areas, and key truck crash locations represent the types of information necessary to fully identify roadway freight needs. In addition to roadways, this process must evaluate the operations of other modes. For example, dredging needs for ports and waterways, the ability of the region's rail system to handle double-stack operations, and adequate airport runway length for cargo operations are critical elements to consider.

Basic versus Advanced Approach

Differences between “basic” versus “advanced” freight needs and deficiencies efforts primarily relate to the cumulative level of effort in the freight planning process. Two of the major variables are the freight data collection efforts and the involvement of freight stakeholders. Many MPOs lack adequate detail on the performance and condition of their freight transportation system. The extent to which MPOs attempt to secure additional information through direct data collection or through purchase of information from private sources is a major variable in such efforts. This information provides the quantitative information that drives the needs and deficiencies process.

The depth and extent of freight stakeholder involvement is another distinguishing factor between basic versus advanced freight needs and deficiencies activities. At a basic activity level, the MPO may choose only to involve a small group of freight stakeholders and limit their involvement to confirming the accuracy of information gathered and deficiencies defined. In an advanced effort, the small group of stakeholders might be expanded to a much larger group and participate in a series of meetings at each process step, such as conducting facilitated meetings to generate a group consensus of regional freight needs and deficiencies. As in other planning activity discussions, the engagement of freight stakeholders is a key success factor in conducting a successful needs and deficiencies activity.

Key Activities

The needs identification process expands on the regional freight profile, using the available data and analyses to focus on areas of improvement. The profile summarizes what the region has and how well it works; the needs and deficiencies statement packages this information, along with anticipated future demand, and focuses on identification of key bottlenecks that need to be effectively managed to ensure continued or enhanced regional mobility, safety, security, and economic vitality. The needs and deficiencies statement will be used to identify and develop freight improvement projects.

MPOs vary in terms of the number and complexity of freight operations. The resulting documentation of freight needs and deficiencies should reflect the relative complexity of the regional freight system (e.g., some MPOs will have limited or no significant water, pipeline, or rail operations, other MPOs may be dominated by one of these modes). Accordingly, the level of effort devoted to identifying needs and deficiencies by freight mode vary for small- to medium-sized MPOs.

Basic Approach

Activity	<ul style="list-style-type: none"> Identifying Freight Needs and Deficiencies—Basic
Activity Type	<ul style="list-style-type: none"> Planning
Level of Effort	<ul style="list-style-type: none"> Moderate
Technical Complexity	<ul style="list-style-type: none"> Low
Data/Analytical Tool Needs	<ul style="list-style-type: none"> Moderate. Relies on work completed as part of the regional freight profile; limited outreach to private partners.
Outreach/Partnership Needs	<ul style="list-style-type: none"> Low. Requires limited interviews and focus groups with a small number of private partners.
Training/Education Needs	<ul style="list-style-type: none"> Low. Requires staff to apply basic freight knowledge to needs identification activities in coordination with outreach; should explore resources available from FHWA. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Regional Freight Profile, Freight Element of LRP, Freight Project Identification.

Key activities: Develop high-level description of key regional freight needs and deficiencies.

Step 1. Review regional freight profile. This step assumes a regional freight profile has been developed. A regional freight profile typically serves as the starting point for the needs and deficiencies analysis, because it summarizes the existing system and its condition. If no regional profile exists, it is recommended that staff consider developing one before conducting a detailed needs and deficiencies statement. If that is not possible, staff should use available data and conduct a limited number of interviews with regional freight stakeholders. Key operational characteristics available from the profile should be used to help staff identify key performance gaps impacting freight operations, such as

- Congestion locations using LOS, speed, and delay;
- High-accident locations involving commercial vehicles;
- Geometrically constrained roadways and intersections impacting truck access to key load centers; and
- Inadequate loading/unloading zones in downtown areas.

Step 2. Identify key freight needs and deficiencies. Based on the profile, staff should identify key bottlenecks. These should consist of locations that have been identified as at or above capacity, high rate of accidents or safety issues, geometric constraints, and locations identified by private partners. If the MPO has not prepared a regional freight profile, the needs and deficiencies should be based on the available data and limited stakeholder interviews. The supply chain analyses completed as part of the regional freight profile should be used to highlight the transportation system performance factors important to the region's industries. These factors should be used in coordination with the operational characteristics to identify the most critical freight needs and deficiencies, which will be documented in Step 3. These factors include, but are not limited to the following:

- Travel time,
- Reliability,
- Speed, and
- Multimodal access.

Step 3. Develop summary of high-priority needs. The complete list of needs and deficiencies should be reviewed by MPO staff. This internal review will provide the opportunity to identify those that are critical to the region. The selected needs should be summarized and used to support the identification and development of improvement projects. MPOs may wish to consider displaying these needs, deficiencies, or bottlenecks on a GIS map, if appropriate.

Advanced Approach

Activity	• Identifying Freight Needs and Deficiencies—Advanced
Activity Type	• Planning
Level of Effort	• High
Technical Complexity	• High
Data/Analytical Tool Needs	• High. Relies on work completed as part of the regional freight profile; significant outreach to private partners through interviews, focus groups, formation of a freight technical advisory committee.
Outreach/Partnership Needs	• High. Requires completion of significant interviews and focus groups with a small number of private partners; organize and implement freight technical advisory committee.

Training/Education Needs	<ul style="list-style-type: none"> • Moderate. Requires staff to apply more advanced freight knowledge to needs identification activities; this will require significant coordination with outreach and partnership activities; should explore resources and training available from FHWA and NHI. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> • Regional Freight Profile, LRP Freight Element, Freight Project Identification.

Key activities: Identify and document freight needs and deficiencies.

Step 1. Review regional freight profile. This step assumes a regional freight profile has been developed. A regional freight profile typically serves as the starting point for the needs and deficiencies analysis, because it summarizes the existing system and its condition. If no regional profile exists, it is recommended that staff consider developing one before conducting a detailed needs and deficiencies statement. The advanced approach relies on significant data and should not be undertaken without a freight profile. Key operational characteristics available from the profile should be used to help staff identify key performance gaps impacting freight operations, such as

- Congestion locations using LOS, speed, and delay;
- High-accident locations involving commercial vehicles;
- Geometrically constrained roadways and intersections impacting truck access to key load centers; and
- Inadequate loading/unloading zones in downtown areas.

Step 2. Identify preliminary list of freight needs and deficiencies. The profile will provide MPO staff with infrastructure and operations data which will support the identification of regional freight needs and deficiencies. These should consist of locations that have been identified as at or above capacity, high rate of accidents or safety issues, geometric constraints, and locations identified by private partners. The supply chain analyses completed as part of the regional freight profile should be used to highlight the transportation system performance factors important to the region's industries. These factors should be used in coordination with the operational characteristics to identify the most critical freight needs and deficiencies, which will be documented in Step 3. These factors include, but are not limited to the following:

- Travel time,
- Reliability,
- Speed, and
- Multimodal access.

Step 3. Conduct additional data collection. Once the list of needs and deficiencies has been identified, MPO staff should identify and collect additional data to provide for a more detailed description and analysis of the specific needs. Using this information, staff will validate the list. Data collection could include traffic counts, field observations and inspections, and additional stakeholder outreach.

Step 4. Conduct focus groups with private partners to validate and flesh out the key regional needs. After the additional data have been collected and the needs have quantitatively been validated, focus groups should be conducted to engage the private sector. This could include use of a freight technical advisory committee. This provides the opportunity to build support for

Association of Central Oklahoma Governments (ACOG)—Identifying Freight Needs and Deficiencies

ACOG, the MPO for the Oklahoma City Regional Transportation Study (OCARTS) area, is an example of an MPO that has developed an effective process for identifying freight needs and deficiencies as part of its long-range planning process. Of particular note is the involvement of a wide range of freight stakeholders and the ability to take advantage of existing training and education resources (peer exchange program).

ACOG has effectively involved the freight community in its region as part of its long-range planning process. In advance of LRP updates, staff distributes transportation surveys to help identify specific needs, and has held focus groups and meetings to gather input on policy issues. These mechanisms were used to develop the initial intermodal element of the 2020 LRTP.

For its 2025 LRTP update, staff called on a panel of peer experts in coordination with the FHWA peer-to-peer program; this included a consultant, the Mid-America Regional Council (MARC, MPO for the Kansas City region), and FHWA's Resource Center. ACOG staff presented its freight profile to this group of experts. Following a review, the panel came back with a long list of recommendations. These recommendations were added to the profile and then presented to local stakeholders, including Oklahoma DOT, railroads, trucking association, rail association, and trucking companies. Following review and comment by the stakeholders, the freight profile and recommendations were incorporated into the LRTP. The local stakeholders were the same companies and agencies involved in the initial intermodal element completed as part of the 2020 LRTP update. As part of the 2025 LRTP update, ACOG evaluated future truck routes using its travel demand model.

potential improvement projects and also provides private partners with the ability to confirm that the list is accurate and complete.

Step 5. Develop list of key freight needs and deficiencies. After completing Steps 1 through 4, the final list of needs and deficiencies should be documented. This should consist of a needs statement that defines and describes each constraint.

Step 6. Develop recommended solutions to guide project identification and development. Once the MPO has identified the nature and scope of freight deficiencies, it must begin to identify tactical ways to address these problems. At this point in the planning process, such solutions typically consist of broad statements such as, add additional lane capacity or construct left turn bay. The identification of specific projects will be addressed as a separate activity (see the Identifying Freight Projects section in this module).

Common Issues and Potential Solutions

The development of a comprehensive needs and deficiencies statement for freight transportation is limited by data, staff expertise, and dependence on other activities in the planning

and programming process. The following summarizes the key challenges and offers potential solutions:

Common Issue	Potential Solution
Lack of freight expertise. Although MPO staff goes through a similar process with every plan and program update to develop the LRP and TIP, many may be challenged by the identification of transportation system needs from the freight perspective. This could especially be true for nonroadway projects.	Investigate training and education opportunities. There are a number of training and education opportunities available to MPO staff to enhance understanding of freight, its common issues and concerns, and how it can be more effectively integrated within a transportation planning process.
Lack of freight data. This activity relies heavily on an established freight profile, which provides a variety of data sources. Freight data have historically been lacking in many regions, and will continue to be until staff has integrated it into the ongoing data collection and management program.	Develop a regional freight profile. The completion of a regional profile can provide an MPO with a better understanding of the regional freight system region. The data and information collection activities conducted as part of a regional freight profile development can directly feed into the identification of needs and deficiencies.
Dependence on other activities. The needs and deficiencies statement evolves from the regional freight profile. It expands on the profile to specifically call out needs. These needs are then fed into the project identification process. The needs identification process has limited usefulness as a stand alone activity.	Designate a Freight Point-of-Contact (POC). A freight technical lead should be designated within the MPO. This POC can act as the liaison between the MPO's various transportation initiatives and between the MPO and other agencies and stakeholders, ensuring that freight issues are addressed within multiple MPO activities. Note that the success of the POC may be limited if the MPO lacks the necessary freight sensitive corporate culture to support the POC's activities.

Developing a Freight Element of a Long-Range Plan

Overview

The long-range transportation planning process is the backbone of an MPO's transportation program. It allows communities to provide input to the regional needs and the development of improvement projects. The planning work completed as part of this process drives the programming work undertaken as part of the development of the TIP. As such, for freight to be successfully mainstreamed within an MPO, it must first be represented in the LRP. Many of the subsequent activities described in this Guidebook depend on and integrate with a freight element of an MPO's LRP.

In addition, the efficiency of a region's freight transportation system directly impacts its economic competitiveness and vitality. The ability of industry to move raw materials and finished products to their respective markets is one of the major considerations when businesses evaluate expansion and relocation options. Freight transportation operations also represent one of the areas that the general public typically want minimized or restricted to specific corridors and facilities. Integrating freight into the LRP provides the opportunity to maximize the ability of an MPO to accommodate freight industry needs while preserving community values.

Basic versus Advanced Approach

Development of a comprehensive freight element for inclusion in an MPO's LRP is a significant undertaking, especially if staff has not previously conducted any freight initiatives. However, many MPOs will need to develop freight elements as an iterative process, starting out initially with more basic information. The basic approach defined here focuses on the development and insertion of freight sensitive language, which should be developed as part of the Freight Policy Directive and

an initial description of the region's freight system, including operations and infrastructure. This also should include identification and outreach to regional freight stakeholders. The advanced approach focuses on a more detailed set of activities that lead staff from the development of freight policy through the identification of needs and deficiencies and improvement project concepts.

Key Activities

The development of a freight LRP element incorporates many of the activities defined in the Guidebook. In addition, it feeds into and supports the other activities. As such, this is a critical element in a successful freight program. The key activities focus on all three areas of policy, planning, and programming. Development of policies is a key component in the initial long-range planning activities. Planning activities represent the most significant element of the LRP, because policies are combined with the available data and applied to the transportation system to identify needs and deficiencies and subsequently develop potential solutions. Programming comes into play as the solutions are advanced and prioritized into investment decisions. The activities defined describe basic and advanced options for undertaking freight-specific long-range planning.

Basic Approach

Activity	<ul style="list-style-type: none"> Developing a Freight Element of a LRP—Basic
Activity Type	<ul style="list-style-type: none"> Policy and Planning
Level of Effort	<ul style="list-style-type: none"> Moderate
Technical Complexity	<ul style="list-style-type: none"> Moderate
Data/Analytical Tool Needs	<ul style="list-style-type: none"> Moderate. Relies on work completed as part of regional freight profile and freight needs and deficiencies; limited outreach to private partners through interviews and focus groups.
Outreach/Partnership Needs	<ul style="list-style-type: none"> Moderate. Requires limited outreach to private partners through interviews and focus groups; builds on earlier outreach efforts.
Training/Education Needs	<ul style="list-style-type: none"> Moderate. Requires staff to apply basic freight knowledge to the long-range planning process; should explore resources and training available from FHWA and NHI. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Freight Policy Directive, Regional Freight Profile, Freight Needs and Deficiencies, Freight Project Identification, Data and Analysis Tools, Outreach and Partnerships, Training and Education.

Key activity: Integrate freight concepts into the LRP.

Step 1. Develop a regional freight policy (see the Developing Freight Policy Directive section in this module). One of the first actions in the development or update of an LRP focuses on the regional goals and objectives. These provide the overall guidance and direction of the LRP. It is critical to address freight as part of this process.

Step 2. Summarize and describe the regional freight system (see the Developing a Regional Freight Profile section of this module). To plan at a system level, staff must have an overall understanding of what the transportation system encompasses and how individual modes work together. Freight cuts across all modes and has its own operating characteristics. The freight profile can be used to identify needs or bottlenecks and can also be used to educate the community.

Step 3. Conduct outreach to regional freight stakeholders to collect information on operations and needs (see the Outreach and Partnerships section in this module). In addition to the regional description, it is critical that the users of the system be given an opportunity to identify the system's strengths and weaknesses.

Step 4. Prepare summary of Steps 1 through 3 as a description of a freight element for the LRP. Based on these steps, staff can develop a summary that provides a snapshot of the regional freight system and its condition. This summary would vary from region to region, depending on the results of the regional freight profile and the data and information collected as part of Step 3. This process will provide the foundation for more advanced work to be completed as the program evolves.

Advanced Approach

Activity	<ul style="list-style-type: none"> Developing a Freight Element of a LRP—Advanced
Activity Type	<ul style="list-style-type: none"> Policy and Planning
Level of Effort	<ul style="list-style-type: none"> High
Technical Complexity	<ul style="list-style-type: none"> High
Data/Analytical Tool Needs	<ul style="list-style-type: none"> High. Relies on work completed as part of the regional freight profile and freight needs and deficiencies activities; requires significant outreach to private partners through interviews, focus groups, and formation of a freight technical advisory committee.
Outreach/Partnership Needs	<ul style="list-style-type: none"> High. Requires significant outreach to private partners through interviews, focus groups, public meetings, and a freight technical advisory committee.
Training/Education Needs	<ul style="list-style-type: none"> High. Requires staff to apply advanced freight knowledge to a full range of transportation planning activities, including the long-range planning process; should explore resources and training available from FHWA and NHI. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Freight Policy Directive, Regional Freight Profile, Freight Needs and Deficiencies, Freight Analysis in Corridor Plans/Studies, Freight Project Identification, Data and Analysis Tools, Outreach and Partnerships, Training and Education.

Key activity: Develop and integrate a freight element into the LRP.

Step 1. Develop a regional freight policy (see the Developing a Freight Policy Directive section in this module). One of the first actions in the development or update of an LRP focuses on the defining regional goals and objectives. These provide the overall guidance and direction of the LRP. It is critical to address freight as part of this process.

Step 2. Summarize and describe the regional freight system (see the Advanced Approach subsection of the Developing a Regional Freight Profile section in this module). To plan for a system, staff must have an overall understanding of what it encompasses. Freight cuts across all modes and has its own operating characteristics. The freight profile can be used to identify needs or bottlenecks and can also be used to educate the community.

Step 3. Conduct outreach to regional freight stakeholders to collect information on operations and needs (see the Advanced Approach subsection of the Outreach and Partnerships section in this module). In addition to the regional description, it is critical that the users of the system be given an opportunity to identify the strengths and weaknesses.

Step 4. Develop a freight needs and deficiencies statement (see the Identifying Freight Needs and Deficiencies section in this module). Once the regional profile has been developed and the community's partners (public and private) have provided input, it is necessary to develop a list of specific needs and deficiencies to stimulate the development of improvement projects.

Syracuse Metropolitan Transportation Council (SMTC)—Developing a Freight LRP Element

The SMTC provides a good example of an MPO that has developed a freight-specific element in its LRP. In fact, the MPO has developed this element through the conduct of ongoing freight-specific initiatives, including truck route studies, rail corridor inventories, grade-crossing studies, and traffic studies, to develop a comprehensive freight LRP element. Figure 3.1 illustrates the region's freight transportation network as identified by SMTC.

Freight planning has been an ongoing part of the MPO's planning activities since 1993 when the scope of the MPO's planning program was expanded to include rail and truck issues. An intermodal planner position also was created and filled at that time to address this area. The position focuses on a range of passenger and freight intermodal issues. This position serves as the lead for MPO freight activities with 33 percent of available time allocated to freight. Other technical staff provides project-specific support.

In addition, SMTC organized the Syracuse Intermodal Roundtable (1994–1998) composed of shippers, manufacturers, wholesalers, trucking companies and rail service providers. This roundtable provided a forum for sharing information and addressing freight issues. It also participated in the Transportation Club of Central New York (an independent association of shippers from Central New York State focused on freight issues in a larger geographic territory than the MPO (mid 1990s). A key factor that has helped the MPO address freight issues is the establishment and ongoing maintenance of contacts with the private sector (transportation providers such as CSXT, short-line railroads, trucking companies, shippers, and manufacturers) and with the New York State DOT (NYSDOT).

SMTC has conducted several freight-specific initiatives and often has one or more manageable freight initiatives underway at any given time. These initiatives have focused on truck and rail issues in the region. These include the following: a truck route study for the City of Syracuse (2000); the Central New York Rail Corridor Inventory (1996 and 2003); a highway-rail grade crossing inventory (2001); the Taft Road-Northern Boulevard Study (multimodal 2001); the Skaneateles Traffic Study (multimodal with a truck routing component, 2000); the I-481 Corridor Study (multimodal 2004); and continuing examination of access and operational issues of the CSX intermodal terminal in Syracuse. The last is an outgrowth of the 1997 Conrail/CSX Intermodal Terminal Access Study.

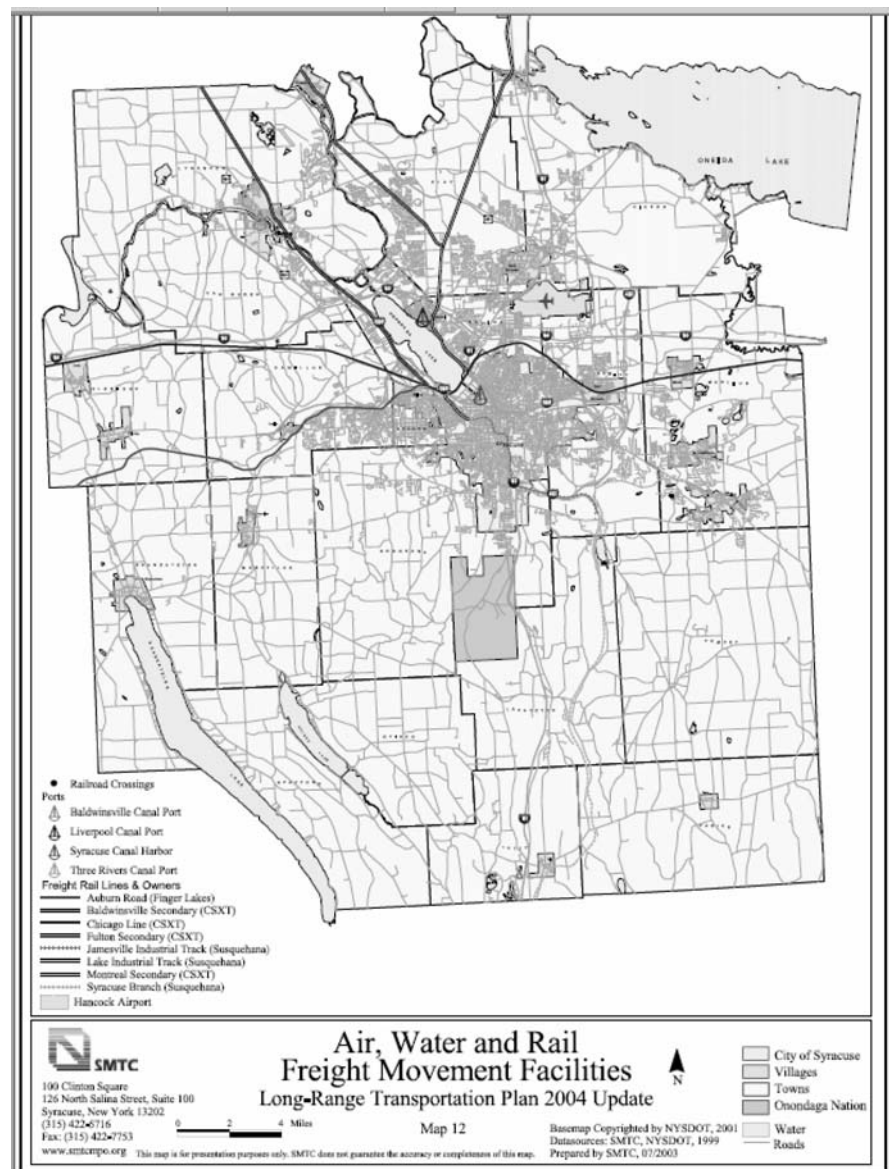
The MPO uses the Reebie Associates commodity flow data purchased by the state DOT. The challenge with these data is that they do not fully address the issues encountered at the local level. The nature of the dataset is that it is better suited for statewide and interregional freight movements. The MPO supplements the Reebie data with local data. SMTC also has participated in statewide MPO staff training on how to use state/regional freight data provided by Reebie Associates. The NYSDOT provides ongoing technical support on a variety of freight, rail, and project programming issues. The MPO staff generally works through the regional NYSDOT office.

http://web.smtcmpo.org/extranet/smtc/reports/LRTP_update_2004/ch04.pdf

Step 5. Identify areas where more research or data are needed. The work completed in these steps will provide a full range of available data and analyses. For MPOs that are new to freight planning, this may raise additional questions. Ongoing freight program development will rely on an evolution of (a) expertise and (b) data and process.

Step 6. Develop freight-specific improvement projects (see the Identifying Freight Projects section in this module). Building on the needs and deficiencies statement, staff should develop projects to mediate the highest priority freight bottlenecks.

Step 7. Prepare summary of Steps 1 through 6 as the freight element for the LRP. Based on these steps, staff can develop a summary that provides a snapshot of the regional freight system, its conditions (needs and deficiencies), and potential improvement projects. These should then feed into the project ranking and prioritization process of the overall LRP update.



Source: http://web.smtcmmpo.org/extranet/smtc/reports/LRTP_update_2004/ch04.pdf.

Figure 3.1. Illustration of the freight network developed by SMTC.

Common Issues and Potential Solutions

There are several issues or challenges that make it difficult to develop a freight LRP element. In part, it is so difficult because it requires MPO staff to conduct several new activities and to integrate those activities into established transportation program processes. Other challenges include data availability, freight expertise, partner participation, and political opposition. The following summarizes the key challenges and offers potential solutions:

Common Issue	Potential Solution
Difficulty integrating with other freight planning activities. This activity requires significant integration with multiple activities. This complicates the process, because it cannot simply reflect a stand alone freight initiative.	Designate a Freight POC. A freight technical lead should be designated within the MPO. This POC can act as the liaison between the MPO's various transportation initiatives and between the MPO and other agencies and stakeholders, ensuring that freight issues are addressed within multiple MPO activities. As part of the effort to expand SMTc's transportation program to include rail and truck issues, an intermodal planner position was created and charged with addressing passenger and freight intermodal issues, with support from other technical staff provided as necessary. As a result of this change, SMTc has undertaken several freight-specific initiatives and strives to remain active in freight planning each year.
Lack of freight data. Although many of the activities build on established data sources, many of the required analyses rely on new or enhanced data, some of which is considered proprietary by private sector partners. This can result in costly data collection activities.	Investigate freight data sources. There are a number of publicly available freight data sources and data techniques that can be useful to support metropolitan freight planning efforts. SMTc effectively used a roundtable composed of key freight stakeholders to help define regional freight issues as well as enhance dissemination of information to the private sector. In addition, SMTc uses commodity flow data provided by the state, and staff took advantage of a statewide MPO training initiative designed to teach staff how to use the dataset. Available data sources are provided in Module 5.
Difficulty including freight within an established planning process. An established LRP process already exists within MPOs. Breaking into this process to create a new discipline can be difficult to accomplish institutionally.	Develop champions and advocates for freight and freight planning. The ability to create new or modified processes and gain the support of the transportation community are in part based on the emergence of a freight champion. Articulating the positive benefits of freight can help create advocacy for freight planning and build support for mainstreaming freight within an existing planning process.
Lack of freight expertise. Many of the activities defined represent a new area of planning for MPO staff. The ability of staff to take advantage of training opportunities and personal initiative to learn a new discipline are necessary for the freight program to be successful.	Investigate training and education opportunities. There are a number of training and education opportunities available to MPO staff to enhance understanding of freight, its common issues and concerns, and how it can be more effectively integrated within a transportation planning process. In addition to FHWA's resources, SMTc participated in a statewide MPO training program on the use of the regional and state level TRANSEARCH data that had been purchased and made available by NYS DOT. The regional DOT office also provides ongoing technical support. In addition, SMTc draws upon the experiences of other MPOs, such as the Buffalo MPO, which manages an international freight gateway.

Lack of partner participation. Convincing private industry representatives to play an active role in the development of a transportation program can be complicated by the planning horizon of MPOs. It is a challenge to engage the private sector in a planning process that looks out 20 years or more.

Develop outreach strategies. There are a number of strategies that can be employed to more fully engage the private sector freight community. SMTTC has established and maintains an extensive list of freight contacts, including a variety of private sector representatives, sister agencies throughout New York State, and the NYS DOT. The Syracuse Intermodal Roundtable was created and maintained for a 5-year period to take advantage of industry partner knowledge. SMTTC currently maintains the relationships developed through the Roundtable and conducts outreach on an as needed basis.

Identifying Freight Projects

Overview

The development of a freight program relies on a variety of factors. The policy and planning activities allow MPO staff to define the system, its characteristics, and its needs. However, if it stops there, it remains a static snapshot with no improvement element. Converting the needs and deficiencies into actual improvement projects that can be evaluated, prioritized, funded, and implemented helps a plan evolve into a program. The freight project identification process is the first programming element addressed by the Guidebook.

Freight project identification refers to the activities associated with identifying projects that address current or anticipated deficiencies between the existing freight transportation system capabilities and existing or anticipated needs. Although many MPOs have not historically invested in nonroadway freight projects, it is important to include the needs of all modes in the project identification because policies relating to investment decisions are being revisited by many states and MPOs.

The majority of roadway projects have some impact on an area's freight and logistics system (ranging from a large impact such as a major bypass proposal to a small impact such as the simple retiming of traffic signals). As such, when asked if freight is considered as part of the transportation program, many MPOs refer to the overall benefit of roadway improvements. This can complicate the process of identifying freight-specific improvement projects. Optimally, project identification activities should result in the identification of solutions for addressing system deficiencies that meet the region's macro-level goals and objectives.

Basic versus Advanced Approach

It is difficult to distinguish between basic and advanced approaches to freight project identification. In part it is tied to the level of effort undertaken in the areas of regional freight profile and freight needs and deficiencies. These two areas provide much of the data used to identify and develop specific projects. The basic approach focuses on evaluating existing projects identified and developed as part of traditional transportation planning and programming activities to identify those that would create the most significant benefit to freight operations. This process works to identify and promote projects that would most directly impact freight operations. For example, the development of a divided through lane on an expressway traversing a downtown area would serve truck traffic passing through the region more so than a landscaping project in a residential area.

The advanced approach focuses on the creation and implementation of a process to identify freight-specific projects to integrate into the overall transportation program. For example, projects would be identified that specifically address an identified freight bottleneck or need. Improving an interchange between a key intermodal connector and a major roadway would improve access to the neighboring freight facility (port, rail yard, airport, etc.).

Key Activities

The identification of freight-specific projects relies on MPO staff having an understanding of current freight needs. The objective of this activity is to begin to define potential projects that will improve or alleviate existing bottlenecks within the freight system. To effectively undertake this activity, staff must have access to infrastructure and operations data, as well as input from regional partners. LOS information, high-accident locations, missing or inadequate intermodal connectors are all factors that feed into this process.

MPOs already have a process in place for the development or generation of project concepts. Typically, this process provides opportunities to various agencies and local partners (i.e., MPO staff, industry, the general public) to recommend project concepts for consideration. As staff members work to define freight-specific projects, it is important that they work within or integrate with the established transportation planning process. This will help ensure that potential freight improvement projects meet the requirements and expectations of the transportation planning and programming activities, thus helping ensure freight projects receive the same level of consideration as nonfreight projects in the pipeline.

Basic Approach

Activity	<ul style="list-style-type: none"> Identifying Freight Projects—Basic
Activity Type	<ul style="list-style-type: none"> Planning and Programming
Level of Effort	<ul style="list-style-type: none"> Low
Technical Complexity	<ul style="list-style-type: none"> Low
Data/Analytical Tool Needs	<ul style="list-style-type: none"> Low. Relies on established list of overall transportation projects and available freight data.
Outreach/Partnership Needs	<ul style="list-style-type: none"> Low. Requires limited outreach to a small number of private partners to validate projects identified as beneficial to freight.
Training/Education Needs	<ul style="list-style-type: none"> Low. Requires staff to apply basic freight knowledge to project identification activities; should explore resources available from FHWA. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Builds on existing transportation program elements and freight work completed to date, such as Regional Freight Profile, Freight Needs and Deficiencies, and Developing a Freight LRP Element.

Key Activity: Identify and promote existing transportation projects that best accommodate and address freight needs.

Step 1. Review projects identified by the overall transportation program activities. Existing project concepts will be used to identify those that best serve freight operations. These projects likely will consist of a variety of roadway projects designed to improve regional mobility and access, as well as improve safety.

Step 2. Conduct interviews with a small number of freight stakeholders. Once a list of potential freight projects have been identified, MPO staff should reach out to key freight stakeholders to build consensus and develop a better idea of project priorities. In addition, the partners may be able to modify the project concepts or suggest alternate ideas that can serve as other potential projects.

Step 3. Develop a list of freight sensitive projects. Based on Steps 1 and 2, MPO staff should develop and document an official list of projects proposed to best serve the region's freight needs. It is anticipated that this list and methodology would be expanded on and improved as part of

subsequent freight planning and programming activities. This list also can be an effective outreach tool to the private sector freight industry, helping potential stakeholders understand what the MPO already is doing to improve freight movements.

Advanced Approach

Activity	<ul style="list-style-type: none"> Identifying Freight Projects—Advanced
Activity Type	<ul style="list-style-type: none"> Planning and Programming
Level of Effort	<ul style="list-style-type: none"> High
Technical Complexity	<ul style="list-style-type: none"> High
Data/Analytical Tool Needs	<ul style="list-style-type: none"> High. Relies on data and analyses provided by related activities; significant outreach to private partners through interviews, focus groups, and formation of freight technical advisory committee.
Outreach/Partnership Needs	<ul style="list-style-type: none"> High. Requires significant outreach to private partners through interviews, focus groups, general public, and a freight technical advisory committee.
Training/Education Needs	<ul style="list-style-type: none"> Moderate. Requires staff to apply more advanced freight knowledge to multiple program areas; should explore resources and training available from FHWA and NHI. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Regional Freight Profile, Freight Needs and Deficiencies, LRP Freight Element.

Key Activity: Identify and describe freight-specific projects.

Step 1. Review the freight needs and deficiencies statement. The advanced approach relies on the existence of a regional freight profile and subsequent freight needs and deficiencies statement. To identify and develop freight projects, MPO staff should have access to significant data and resources that describe current limitations and highlight key industry-specified performance indicators. If this material is not available, staff is encouraged to first complete these two activities. This approach is not recommended for MPOs that have not completed the earlier steps.

Step 2. Identify potential projects based on existing bottlenecks. The needs and deficiencies statement should provide staff with detailed data on existing bottlenecks and key priorities based on regional supply chain management practices. Based on this review, staff should identify key bottlenecks and define potential improvement projects. As part of the effort, staff should review existing projects to ascertain if there are any plans already in place to improve the problem.

Step 3. Conduct outreach to private stakeholders to validate potential projects. Once staff has developed a list of potential projects, private stakeholders should validate them. This can be accomplished through interviews or focus groups. The intent is to build support for the projects (identify possible project champions) and provide an opportunity for refinements to existing concepts and the identification of additional concepts.

Step 4. Refine and select key freight project concepts. Based on the results of the outreach, a final list of project concepts should be developed. This list should represent the best information available from both qualitative and quantitative sources.

Step 5. Define preliminary project descriptions. More detailed descriptions of the project concepts should be developed to provide background information and development considerations. This will facilitate staff's ability to build support for the projects.

Polk Transportation Planning Organization (TPO)—Identifying Freight Projects

The Polk TPO is the MPO for Polk County in central Florida. One of the Polk TPO's biggest success stories is the West Memorial (U.S. 92) Interchange on I-4 in the northwestern part of Lakeland. This full movement interchange will significantly improve truck travel patterns by providing direct eastbound and westbound access to I-4 for trucks operating to and from Lakeland's large distribution facilities (groceries, furniture, automotive parts, etc.). Currently, trucks must use surface roads through the city of Lakeland to reach access ramps for I-4. This project, championed by many local stakeholders, successfully maneuvered the transportation planning process. It was included in the 2025 LRTP Update and subsequently programmed in the TIP. The interchange opened to traffic in late 2005.

The successful completion of this project was the result of a focused effort, involving multiple parties, that would not have resulted from a typical planning process (i.e., Florida DOT [FDOT] models did not initially justify the major expense of the project). Shippers and carriers using the industrial area in northwest Lakeland, frustrated by poor access to I-4, communicated the need for the interchange to the Lakeland and Central Florida Economic Development Councils (EDCs). The communication of this need was facilitated by a longstanding relationship between the companies and the EDCs. The importance of the improvements was then relayed to the Polk TPO. With the need for an improved interchange documented, the Polk TPO worked with FDOT to come up with an affordable and fully functional solution to the problem. The result was a full movement interchange design that could be built entirely within existing right of way and at a lower cost than an earlier design. With support from the freight community, the mayor of Lakeland, the TPO Board, the local community, and backing from the FDOT district office, the revised interchange was programmed in the MPO's TIP.

Step 6. Review detailed project descriptions with private partners. To ensure that the selected projects and their descriptions are accurate and meet the needs of existing supply chain management practices, MPO staff should conduct follow-up outreach activities with key private partners. These activities should focus on those partners that will be directly impacted by proposed projects. This can be accomplished through one-on-one meetings, focus groups, or both.

Step 7. Integrate final project list into overall transportation program activities. Once staff has developed and described the list of freight projects, the projects should be integrated into the overall list within the defined program processes, which will feed the LRP and TIP processes.

Common Issues and Potential Solutions

The development of a list of freight-specific projects is limited by data, staff expertise, and dependence on other activities in the planning and programming process. The following summarizes the key challenges and offers potential solutions:

Common Issue	Potential Solution
<p>Lack of freight expertise. Although MPOs go through a similar process with every plan and program update to develop the LRP and TIP, many may be challenged by the identification of transportation projects from the freight perspective. This could especially be true for nonroadway projects.</p>	<p>Allow the private sector freight community to submit needs and projects for consideration. The private sector freight community can be an important source of information related to needs and deficiencies and potential freight improvement projects, because they are the primary users of the system and understand its strengths and limitations. In the case of the Polk TPO, the private sector freight community was allowed to submit projects directly or through the EDC, for consideration. This resulted in the identification and eventual programming of a significant freight improvement project that normally would not have been completed. MPOs that have difficulty identifying potential freight improvements may wish to consider such a strategy.</p>
<p>Lack of freight data. This activity relies heavily on an established freight profile and a needs and deficiencies statement, which provide a variety of data sources. Freight data have historically been lacking in many regions and will continue to be until staff has integrated it into the ongoing data collection and management program.</p>	<p>Develop a regional freight profile. The completion of a regional profile can provide an MPO with a better understanding of the freight system in a region. The data and information collection activities conducted as part of a regional freight profile development can directly feed into the identification of needs and deficiencies.</p>
<p>Dependence on other activities. Freight-specific projects are identified and developed from the regional freight profile, the needs and deficiencies statement, and public outreach activities. Without these activities and resources, the process of identifying projects is constrained.</p>	<p>Designate a Freight POC. A freight technical lead should be designated within the MPO. This POC can act as the liaison between the MPO's various transportation initiatives and between the MPO and other agencies and stakeholders, ensuring that freight issues are addressed within multiple MPO activities.</p>

Addressing Freight in Corridor Plans and Studies

Overview

Corridor plans and studies are one of the key activities undertaken by MPOs and state DOTs. These initiatives drive investment decisions that improve and enhance regional mobility. A region's economic competitiveness is directly related to freight mobility. Therefore, it is critical that freight considerations be included in the analyses. These types of initiatives typically look at a variety of alternatives that evaluate the available options, such as congestion management strategies, use of ITS, and capital improvements. Historically, studies of this type have focused on roadway corridors. There are different types of corridor projects. For example, the I-95 Corridor Coalition, which runs from Maine to Florida, represents a multistate initiative to improve operations. Other, more localized corridors better reflect the type of projects with which an MPO would become involved. These often represent major corridors serving an urbanized area.

The Atlantic Commerce Corridor in southeast Florida is an example of a corridor study designed specifically to look at freight transportation needs across a variety of modes. This project involved three MPOs, two DOT district offices, and several private partners representing industry concerns. The study identified more than 6 billion dollars worth of project needs affecting a variety of modes and facilities, including three deep water seaports, three international airports, two freight railroads, and the roadway system. Completion of this resulted in the designation of the I-95 corridor along the entire eastern coast of Florida as a corridor of national significance, opening the door to a wider range of funding and investment opportunities.

Many other regions have conducted freight corridor studies, as well. Southern California, for instance, has conducted several studies of how dedicated truck lanes along key roadway corridors could reduce congestion and improve mobility for trucks serving key freight generators, such as the Ports of Los Angeles and Long Beach, as well as reduce truck and auto conflicts in the region. Other truck-lane feasibility studies have been conducted along key freight corridors in the area. While most small- and medium-sized MPOs will not undertake such comprehensive truck-lane studies, many already conduct or are involved in significant corridor studies. It is important to provide guidance on how to address freight issues within these efforts.

The approach recommended for small- and medium-sized MPOs focuses on expanding traditional corridor studies to better reflect the needs of freight movements. This includes truck needs to move within a corridor and on intermodal connectors that provide access to major load generators, such as seaports, rail intermodal yards, air cargo operations, and key industrial areas.

Basic versus Advanced Approach

There are a variety of ways to integrate freight into corridor studies and plans. In part, how basic or advanced these activities are depends on the type of project. The basic approach focuses on integrating freight into existing transportation projects. This includes defining freight as one of the basic considerations to be included in the alternatives analysis. For example, at the basic level, a roadway corridor study can be enhanced to include private industry in the outreach and data collection to document the needs of industry.

The advanced approach expands on the basic approach by more formally integrating freight into the study or plan. It includes the collection and analysis of freight-specific data as part of the alternatives analysis, including the development of freight-specific alternatives, as appropriate. For example, freight-specific alternatives can be developed to specifically address interchanges, access points, capacity, roadway geometrics, and other bottlenecks from the perspective of truck operations. In addition, it could include the incorporation of multiple modes. For example, if there is a rail corridor or other modal linkages within close proximity, the analysis could be expanded to include intermodal connection needs as well as modal diversion considerations.

Key Activities

Incorporating freight into corridor plan or study analyses is important to the overall development of a successful freight transportation program. Many MPOs and state DOTs conduct corridor studies to address regional mobility issues. These typically represent significant investments in the transportation system—investments that benefit all types of movements (intra-regional, interregional, and through trips). The key activities suggested to successfully integrate freight needs focus on incorporating freight as one of many considerations evaluated as part of the overall project. This can be accomplished by integrating freight-specific elements into existing alternatives or by promoting an alternative that looks specifically at improvements that would improve freight operations. The following activities address these approaches.

Basic Approach

Activity	• Addressing Freight in Corridor Plans and Studies—Basic
Activity Type	• Planning
Level of Effort	• Low
Technical Complexity	• Low
Data/Analytical Tool Needs	• Low. Requires limited data collection and outreach to private partners through existing committees to provide basic operational information and needs identification.

Outreach/Partnership Needs	<ul style="list-style-type: none"> • Low. Requires inclusion of private partners in general outreach activities. Existing advisory committees can provide valuable input.
Training/Education Needs	<ul style="list-style-type: none"> • Low. Requires staff to apply basic freight knowledge to existing corridor projects; should explore resources available from FHWA. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> • Regional Freight Profile, Freight Needs and Deficiencies, Freight Project Identification.

Key Activity: Integrate freight considerations into the corridor study or plan process.

Step 1. Define freight as one of the corridor evaluation areas within the project scope. Early in the process as part of the project scope, regional freight mobility needs should be called out as one of the objectives. This will ensure that the process incorporates freight from inception.

Step 2. Identify and work with private sector representatives to document key issues. As part of the analysis, outreach should be conducted to build public support for the selected alternative. Freight stakeholders should be included in this process. Existing advisory committees should be used, if available.

Step 3. Integrate freight issues into the potential project solutions. Although the basic approach does not call for the creation of freight-specific alternatives, it does support the inclusion of freight as one of the evaluation criteria in determining the best alternative for the corridor.

Advanced Approach

Activity	<ul style="list-style-type: none"> • Addressing Freight in Corridor Plans and Studies—Advanced
Activity Type	<ul style="list-style-type: none"> • Planning
Level of Effort	<ul style="list-style-type: none"> • High
Technical Complexity	<ul style="list-style-type: none"> • High
Data/Analytical Tool Needs	<ul style="list-style-type: none"> • High. Requires collection of freight-specific data to support specific operational analyses and travel demand model evaluations; conduct significant outreach with impacted private partners through interviews, focus groups, general public, and formation of a freight technical advisory committee.
Outreach/Partnership Needs	<ul style="list-style-type: none"> • High. Requires involvement of private partners in all the planned outreach activities; conduct of interviews and focus groups; and engagement of the freight technical advisory committee.
Training/Education Needs	<ul style="list-style-type: none"> • Moderate. Requires staff to apply knowledge of freight data to existing corridor projects in coordination with significant outreach activities; should explore resources and training available from FHWA and NHI. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> • Regional Freight Profile, Freight Needs and Deficiencies, Freight Project Identification.

Key activity: Develop freight-specific alternatives within a corridor study or plan.

Step 1. Define freight as one of the corridor evaluation areas. As the scope is being developed for the corridor study or plan, it is critical that freight be highlighted as one of the key factors in the creation and evaluation of alternatives. Based on the corridor, this step should include freight-specific alternative(s), as appropriate.

Step 2. Identify and work with private sector representatives to document key issues and alternative characteristics. As part of the analysis, outreach will be conducted to build public support for the selected alternative. Freight stakeholders should be included in this process to provide an opportunity for system users to contribute to potential solutions.

Step 3. Collect and evaluate freight-specific data. Data drive the planning process. To integrate freight considerations into a corridor study, it is necessary to have adequate data. Freight data should be collected to support operational analyses specific to the corridor’s characteristics and study scope. Truck counts are an example of freight-specific data required for corridor studies. In addition, nearby freight load centers, such as an intermodal terminal, port facility, or airport would contribute significantly to the corridor’s operation and staff should work to identify data sources describing the operations of these kinds of facilities.

Step 4. Develop freight-specific improvement components or alternatives. Based on an evaluation of operational conditions, specific improvement options should be developed that integrate with and promote overall corridor efficiency. Key access points (intermodal connectors) and truck only lanes are a few options to consider.

Step 5. Conduct outreach to private stakeholders to validate potential improvement options. Once staff has developed a list of specific improvement options, private stakeholders should validate them. This can be accomplished through interviews, focus groups, or both. The intent is to build support for the corridor study and provide an opportunity for refinements to existing concepts and the identification of additional concepts

Step 6. Integrate freight into the corridor evaluation process. The freight-specific alternatives and specific improvements should be part of the overall evaluation of alternatives. These steps provide the base data and development of improvements necessary to support this activity.

Common Issues and Potential Solutions

For many MPOs and state DOTs, the ability to integrate freight into corridor planning holds the same challenges associated with overall freight policy, planning, and programming activities. Many MPO staff members do not have training in freight and goods movement issues. In addition, they often lack necessary data to easily integrate freight considerations into existing processes. The following summarizes the key challenges and offers potential solutions.

Common Issue	Potential Solution
Lack of freight expertise. Many of the activities defined represent a new area of planning for MPO staff. The ability of staff to take advantage of training opportunities and personal initiative to learn a new discipline are necessary for the freight program to be successful.	Investigate training and education opportunities. There are a number of training and education opportunities available to MPO staff to enhance understanding of freight, its common issues and concerns, and how it can be more effectively integrated within a transportation planning process.
Lack of freight data. Aside from standard vehicle classification counts, many MPOs do not have access to freight-specific data to support corridor studies. In addition, some types of freight data differ from traditional transportation data, making integration more difficult.	Investigate freight data sources. There are a number of publicly available freight data sources and data techniques that can be useful to metropolitan freight planning efforts. See the Data and Analytical Tools section of this module for more guidance. In addition, Module 5 includes a list of freight data resources.
Lack of project champion and political opposition. Corridor improvement projects often address significant transportation investments to better manage regional mobility for all transportation system users. Building support for a freight-specific enhancement is often limited due to competing agendas. In addition, many leaders and their constituents are not well versed in the benefits of freight transportation.	Develop champions and advocates for freight and freight planning. Few local decision-makers and general public members understand the link between efficient freight movements and quality of life. Articulating the positive benefits of freight can help create advocacy for freight planning.

Developing Freight Project Evaluation Criteria

Overview

Project evaluation criteria dramatically impact the direction and content of an MPO's transportation program. They ultimately are responsible for the selection and prioritization of specific improvement projects with both LRTPs and TIPs. As a result, for freight to become an integrated component in a region's transportation program, it must be recognized and acknowledged through the project evaluation criteria. The most effective mechanism for ensuring that freight considerations are part of the process is to modify and enhance the existing processes used by MPOs to evaluate and rank transportation improvement projects. The specific categories used by MPOs vary; however, they typically address the following categories:

- Safety and security,
- Mobility and system performance,
- Economic development and land use,
- Growth management,
- Intermodal and multimodalism,
- Environmental impact, and
- Quality of life.

Although these categories address the overall project impacts on a region, it is also important that the evaluation criteria identify impacts on or value to key regional industries. In addition to their impacts on these categories, freight projects should also be driven by their ability to meet the needs of regional freight operators. Examples include assessing the impact or value to businesses located in an industrial park of a new Interstate interchange that would provide direct access to the highway or evaluating the benefits to industry of improved travel time, reduced truck traffic, or improved reliability. These and other types of freight impacts should be identified and addressed by project evaluation criteria.

Most MPOs have at least two important processes; one to support development of their LRP, and another to support development of their TIP. Most MPOs evaluate their projects within categories, such as by mode (bike/pedestrian, roadway, transit, and freight) or by impact category (mobility, safety, economic development). The Guidebook encourages users to work within the confines of their established program processes to identify opportunities for integrating freight-specific project considerations.

Basic versus Advanced Approach

The development of freight project evaluation criteria can be accomplished through a variety of activities. The basic approach focuses on simple modifications to the existing project evaluation criteria to better reflect or accommodate freight projects. The objective of this approach is to ensure that freight projects are included in the evaluation process by inserting or changing language to the existing process. The advanced approach consists of very similar steps, except it calls for the development and integration of freight-specific project evaluation criteria. Instead of modifying existing language to recognize freight, new language will be developed to specifically address freight projects, as well as ensure that transportation projects in general recognize the operational and design requirements of freight movements.

Key Activities

Development of freight project evaluation criteria represents a critical step in the programming process. Once the projects have been identified there needs to be a mechanism in place to

rank and prioritize them. Most likely, these projects will be competing among themselves, as well as with nonfreight projects. An MPO must make a decision as to how these processes should be accomplished. Within the realm of freight-specific projects, a variety of factors can be measured, including improvements in mobility, reduction in congestion, improved access, economic impacts, and safety and security enhancements. Many of these also will translate into the overall project evaluation process; however, they will require a modified set of data.

The following approaches focus on the key steps required to undertake this activity. They include activities like language modifications (which will incorporate freight-specific impacts into existing evaluations) and the development of specific freight measures (which will require new data and analyses).

Basic Approach

Activity	<ul style="list-style-type: none"> Developing Freight Project Evaluation Criteria—Basic
Activity Type	<ul style="list-style-type: none"> Planning and Programming
Level of Effort	<ul style="list-style-type: none"> Moderate
Technical Complexity	<ul style="list-style-type: none"> Moderate
Data/Analytical Tool Needs	<ul style="list-style-type: none"> Moderate. Requires identification and collection of new data requirements; refinement to existing evaluation criteria.
Outreach/Partnership Needs	<ul style="list-style-type: none"> Low. Requires limited outreach to private partners to verify evaluation criteria.
Training/Education Needs	<ul style="list-style-type: none"> Moderate. Requires staff to apply freight knowledge to short- and LRP development activities; should explore resources and training available from FHWA and NHI. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Freight Project Identification, LRP Freight Element, TIP Development.

Key activity: Integrate freight considerations into established evaluation criteria processes.

Step 1. Review and evaluate existing transportation evaluation criteria. MPOs have been evaluating the impacts of potential projects for years. The most fundamental approach available for evaluating freight projects is to build on or modify these processes. The first step for MPO staff is to review these processes and evaluate the degree to which they already may incorporate freight considerations.

Step 2. Identify potential language modifications to better integrate or account for freight projects. Based on the review of existing evaluation processes, MPO staff should identify specific language modifications. For example, criteria that look at annual average daily traffic (AADT) could be expanded to include reference to annual average daily truck traffic (AADTT).

Step 3. Identify new data requirements to evaluate freight projects. Once the language modifications have been developed, it is critical that the necessary data be collected to support the changes. In the Step 2 example, if AADT is expanded to include AADTT, vehicle classifications will be required.

Step 4. Refine evaluation process. The recommended language changes and new data requirements should be integrated into the MPO's procedures. This will likely require close coordination and cooperation with the staff responsible for overall project evaluation. Staff members should be included in all these steps to help build consensus early on in this activity.

Step 5. Implement process as part of next update. Steps 1 through 4 should provide staff with a modified, freight sensitive project evaluation process. Implementation should occur as part of the next regularly scheduled update.

Advanced Approach

Activity	<ul style="list-style-type: none"> • Developing Freight Project Evaluation Criteria—Advanced
Activity Type	<ul style="list-style-type: none"> • Planning and Programming
Level of Effort	<ul style="list-style-type: none"> • High
Technical Complexity	<ul style="list-style-type: none"> • High
Data/Analytical Tool Needs	<ul style="list-style-type: none"> • High. Requires identification and collection of new data requirements; refinement to existing and development of new evaluation criteria.
Outreach/Partnership Needs	<ul style="list-style-type: none"> • Low. Requires limited outreach to private partners to verify evaluation criteria.
Training/Education Needs	<ul style="list-style-type: none"> • High. Requires staff to apply freight knowledge to short- and LRP development activities; should explore resources and training available from FHWA and NHI. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> • Freight Project Identification, LRP Freight Element, TIP Development.

Key activity: Develop freight-specific project evaluation criteria and integrate them into established processes.

Step 1. Review and evaluate existing transportation evaluation criteria. MPO staff should be familiar with the existing evaluation criteria and the associated process before embarking on the development of a new set of criteria. This is critical, because ultimately integration, coordination, and cooperation will be necessary to achieve a balanced approach to project evaluation activities.

Step 2. Review available freight data, analyses, and projects provided by other activities. To develop a comprehensive set of freight project evaluation criteria, it is critical that staff understand the system, its operation, the available data, and the types of projects being considered. The supply chain analyses completed as part of the regional freight profile should provide valuable input and insights into the priorities of the private partners.

Step 3. Develop stand alone freight-specific evaluation criteria. Based on the material identified and reviewed in Step 2, specific criteria should be developed. These criteria should address a full range of freight and infrastructure operations across all modes. Some of these will reflect existing measures from the freight perspective, while others will represent new criteria. These criteria should address (1) the direct impacts on private partner operations and (2) overall impacts on the region.

Step 4. Identify new data requirements to evaluate freight projects. It is important to identify criteria for which data are or can be available. As the criteria are being developed in Step 3, staff should be defining the data requirements necessary to effectively implement them.

Step 5. Integrate freight evaluation criteria in the transportation project evaluation process. As with other transportation elements, freight criteria should be incorporated into the overall evaluation process. This could consist of a new freight component to the established process, or it could involve true integration. Staff should look to its specific programs for guidance on this decision.

Step 6. Implement process as part of next update. Steps 1 through 5 should provide staff with a modified, freight sensitive project evaluation process. Implementation should occur as part of the next regularly scheduled update.

Toledo Metropolitan Council of Governments (TMACOG)—Developing Freight Project Evaluation Criteria

TMACOG has developed a project solicitation and ranking process that begins to integrate freight into the project evaluation process by addressing the overall transportation program. As part of its TIP, TMACOG staff evaluates projects based on a variety of factors. These factors are primarily inclusive of freight project characteristics and are highlighted in three areas: economic development, multimodal, and system use and performance. The following table presents the specific elements and allocated points.

TMACOG Project Solicitation and Ranking Process

TIP Prioritization			
Factors	Freight-Related Elements	Measured	Points
Economic Development (10%)	Projects with 10 or more jobs (includes retail and service)	Localized	2
		Multiple Jurisdictions	4
		Regional Impacts	6
	Projects with 10 or more jobs (no retail and service)	Localized	6
		Multiple Jurisdictions	8
		Regional Impacts	10
Quality of Life (10%)	NA	NA	NA
Multimodal (15%)	Projects which provide access to multimodal terminals:	Regional Scale	10
		Major Scale	5
		Minor Scale	3
Local Commitment (15%)	NA	NA	NA
System Use and Performance (50%)	Percent Truck Traffic (For projects on a truck impact route add 2 points. Maximum number of points for this item is 5)	<5%	0
		5 to 10%	1
		10 to 15%	2
		15 to 20%	3
		20 to 25%	4
		>25%	5

Source: Transportation Improvement Program (TIP), 2006–2009, March 2005, Public Review Draft, Prepared by Toledo Metropolitan Area Council of Governments.

NA = Not applicable. Only factors that specifically addressed freight interests were called out in this example.

Common Issues and Potential Solutions

There are several common issues or challenges that MPOs will face in the development of freight project evaluation criteria. These challenges consist of data limitations, lack of specific freight projects to evaluate, the ability to evaluate impacts and benefits across modes, and local

political resistance to freight and goods movement initiatives. The following summarizes the key challenges and offers potential solutions:

Common Issue	Potential Solution
Lack of freight projects. Many MPOs have not identified and developed freight-specific projects. Freight needs are typically addressed directly or indirectly as part of the overall transportation program. Without a process in place to identify and develop freight projects, it is not feasible to develop freight evaluation criteria.	Allow the private sector freight community to submit needs and projects for consideration. The private sector freight community can be an important source of information related to needs and deficiencies and potential freight improvement projects, because they are the primary users of the system and understand its strengths and limitations. In some MPOs, the private sector freight community is allowed to submit projects directly for consideration. The private sector also can be an important resource when developing freight-specific evaluation criteria.
Limitations of freight data. The availability of freight data continues to be a major factor for MPO planning staff when conducting freight planning activities. As a result, the creation of freight evaluation criteria is restricted to those criteria for which data are available.	Investigate freight data sources. There are a number of publicly available freight data sources and data techniques that can be useful in developing freight evaluation criteria. State DOTs, FHWA, and other agencies are potential sources of freight data. See the Data and Analytical Tools section of this module for more guidance. In addition, Module 5 includes a list of freight data resources.
Local political will. Many regions have a strong anti-freight political environment. This sentiment often restricts the ability of technical staff within MPOs to expand programs to include freight.	Develop champions and advocates for freight and freight planning. Few local decision-makers and general public members understand the link between efficient freight movements and quality of life. Articulating the positive benefits of freight can help create advocacy for freight planning.

Developing Freight Performance Measures

Overview

Performance measures have become an increasingly important component of transportation planning and programming activities. Investment decisions are being driven more and more by anticipated and proven results. This change forces agencies to invest in projects and programs that can be shown to benefit their impacted communities. Performance measures are used to evaluate both proposed projects and implemented program elements. The results provide additional data and tools for ongoing program expansion and enhancements.

Freight performance measures can serve various purposes in the freight planning process. It is beneficial to be able to use freight performance measures to evaluate how future conditions will affect system performance and how planned projects contribute to meeting regional goals and objectives. This type of evaluation is also especially useful for conducting alternatives evaluations in corridor studies. Performance measures that are tracked on a regular basis can provide early warning signs of problems that need to be addressed in planning for the future and help focus a freight planning program. Performance measures can be used to evaluate the relative benefits of different LRP options or they can be adapted for selection of freight projects for inclusion in a TIP.

Basic versus Advanced Approach

Approaches to developing and maintaining freight performance measure systems can be distinguished based on the amount of data collection required and whether or not they involve forecasting the measures for alternate future conditions. Ideally, MPOs will choose performance measures that are directly related to the goals and objectives of their freight program. However,

it may be difficult to identify sources of data that can be used to evaluate conditions related to all goals and objectives. To simplify the process and application, some MPOs simply identify easy to track indicator metrics that tell them something basic about what is happening in the freight system, for example, an indicator of growth or decline in traffic volumes, changes in the percentage of trucks on high-volume facilities, or spreading of peak periods (which may reduce the amount of off-peak time in which trucks can operate).

A more advanced approach incorporates travel demand model outputs. Some freight performance measures come directly from travel demand models. As a result, if freight traffic can be distinguished in these models, they can be used to forecast freight performance. Hours of recurrent delay for trucks (or on key truck routes), LOS, change in truck percent on key corridors, travel time between major freight origins and destinations are all examples of freight performance measures that can be estimated using a travel demand model that includes truck trip tables. This concept has been extended in the San Joaquin Valley Truck Model and the Freight Action Strategy (FAST) for Everett-Seattle-Tacoma Truck modeling tool using the results of a travel demand model with some readily available sketch planning tools.

Key Activities

For performance measures to be useful, they need to relate to specific goals and objectives, whether these are goals and objectives of an overall freight program or the purpose and need statement in a corridor study or plan. To the extent that these are general goals and objectives that are similar to those established for passenger transportation (e.g., mobility, safety, environmental health, etc.), the metrics may be the same as they are for passenger transportation but focused on the freight elements of the system. For example, performance measures for freight mobility may be hours of delay for trucks or on key truck routes; performance measures for freight safety may be accidents at rail grade crossings or accidents involving trucks.

Some aspects of performance may be important to meet regional goals and objectives but either the data are not available to measure them or there are no useful metrics. Reliability is an aspect of system performance that freight stakeholders often cite as critical but it is an elusive aspect of performance from a measurement perspective. In some cases, as in Brownsville, TX, MPOs may choose to focus on one or two very simple metrics (e.g., amount of truck traffic moving through a border crossing or through the gates of a port or intermodal facility) as the primary indicator. If baseline conditions are established and system performance is viewed as satisfactory by stakeholders under these conditions, useful baseline measures may be established with which to compare future performance.

Basic Approach

Activity	<ul style="list-style-type: none"> Developing Freight Performance Measures—Basic (without Forecasting)
Activity Type	<ul style="list-style-type: none"> Planning and Programming
Level of Effort	<ul style="list-style-type: none"> Moderate
Technical Complexity	<ul style="list-style-type: none"> Low to Moderate
Data/Analytical Tool Needs	<ul style="list-style-type: none"> Moderate. Relies on data collected to support measures such as truck/freight volumes on key facilities, travel times between major freight origin-destination points, number of accidents involving freight vehicles, etc.
Outreach/Partnership Needs	<ul style="list-style-type: none"> Moderate. Requires outreach to private partners to solicit feedback on proposed freight performance measures.
Training/Education Needs	<ul style="list-style-type: none"> Moderate. Requires staff to apply freight knowledge of multiple data intensive activities; should explore resources and training available from FHWA and NHI. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Regional Freight Profile, Freight LRP Element, Data and Analysis Tools, Freight Project Evaluation Criteria.

Key Activity: Work with stakeholders to identify useful metrics related to goals and objectives, identify available data, and conduct evaluation.

Step 1. Identify a priority or critical freight network, including all components. This will help focus the performance measurement on those aspects of the system that are of most concern to users. This information should be available through the regional freight profile.

Step 2. Determine what types of data are available for these system elements from system operators. This may include data on traffic volumes, average speeds and travel times, accidents, and so forth. Note that some of the data may only be available through private system operators. This information also should be available through the regional freight profile.

Step 3. Prepare an initial list of potential indicators for key goals and objectives of the freight program and match these with available data. Always make sure that the performance measures are related to key goals and objectives and the data are available.

Step 4. Review the performance measures with stakeholders (preferably an ongoing FAC and agency staff). For any performance measures for which readily available measures do not exist, determine with freight stakeholders the potential for successfully collecting new data.

Step 5. Conduct performance evaluations based on defined measures and data. Using the defined performance measures and available data, evaluate the freight transportation system.

Advanced Approach

Activity	• Developing Freight Performance Measures—Advanced (with Forecasting)
Activity Type	• Planning and Programming
Level of Effort	• High
Technical Complexity	• High
Data/Analytical Tool Needs	• High. Requires evaluation of freight modeling tools with all system elements.
Outreach/Partnership Needs	• Moderate. Requires outreach to private partners to solicit feedback on proposed freight performance measures.
Training/Education Needs	<ul style="list-style-type: none"> • High. Requires staff to apply freight knowledge of multiple data intensive activities, including forecasting; should explore resources and training available from FHWA and NHI. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Regional Freight Profile, Freight LRP Element, Data and Analysis Tools, Freight Project Evaluation Criteria.

Key Activity: Develop forecasting tools that evaluate how performance measures change with changes in the system characteristics.

Step 1. Identify a priority or critical freight network, including all components. This will help focus the performance measurement on those aspects of the system that are of most concern to users. This information should be available through the regional freight profile.

Step 2. Determine what types of data are available for these system elements from system operators. This may include data on traffic volumes, average speeds and travel times, accidents, and so forth. Note that some of the data may only be available through private system operators. This information should be available through the regional freight profile.

Step 3. Identify and review available travel demand models and data. Regional travel demand models provide roadway system data in the form of both input and output files. These data, along with the modeling process, can be used to evaluate the base and future performance of the roadway system. They can also address access to key load centers.

Step 4. Prepare an initial list of potential indicators for key goals and objectives of the freight program and match these with available data. Based on a review of the available transportation system and model data, identify and document the potential freight performance measures. Always make sure that the performance measures are related to key goals and objectives and that data are available.

Step 5. Review the performance measures with stakeholders (preferably an ongoing FAC and agency staff). Soliciting input from the impacted stakeholders is an important step. This activity validates the list based on the expertise of the system users. For any performance measures for which available measures are not available, determine with freight stakeholders the potential for successfully collecting new data.

Step 6. Conduct performance evaluations of base and future alternatives based on defined measures and data. Using the defined performance measures, available data, and models, MPO staff should evaluate the freight transportation system. This will require the programming of improvement projects into the travel demand model to measure the anticipated changes in performance.

East-West Gateway Coordinating Council (EWGCC)—Developing Freight Performance Measures

EWGCC provides an example of an MPO that has developed effective performance measures for freight.

EWGCC has developed performance indicators specific to the freight system in St. Louis that coincided with important goals shared by the MPO's FAC. In addition, the number of indicators was manageable in size and could be measured with available or easily obtainable data. The refined list of indicators was divided into five summary categories, and the regional freight plan recommended their use in a regional TIP. The following is the list of indicators as presented in that draft 1998 regional freight plan.

Connectivity/Congestion—Average speed on the St. Louis Region's roadway network and truck counts at several key locations.

Safety—Number of at-grade railroad crossings, number of overpasses that have vertical clearance restrictions, number of weight-restricted bridges or overpasses, intersections with inadequate turning radii for 53' trailers, high-accident locations, ramp geometry where sight distance to poor or sharp turns is required, and pavement life.

Reliability—LOS below C.

Intermodal—Tons of air freight departing, tons of cargo transported through the port, and number of intermodal lifts that occur yearly at the local intermodal facilities.

Economic/Environmental—Value of freight moved from, to, and within the region, number of people employed in five major economic sectors in the region (e.g., transport and manufacturing), amount of warehouse space available in the region and current occupancy rate of the warehouse space, and number of projects and dollars expended.

These performance measures represent a balance between the need for meaningful indicators that truly inform the process for programming improvements and the need for indicators that are easily measurable.

Common Issues and Potential Solutions

Key challenges associated with the development and application of performance measures include definition of measurable impacts, staff expertise, availability of data and resources, and the availability and functionality of travel demand models. The following summarizes the key challenges and offers potential solutions.

Common Issue	Potential Solution
<p>Measurable impacts and data availability. One of the key obstacles faced by staff will be the ongoing ability to apply the performance measures. Staff can identify a comprehensive list of performance measures, but if expertise and data are not available to apply them then the program will not succeed.</p>	<p>Dedicate yourself to data collection. MPOs must be mindful of their capacity for data collection in drafting the indicators. In addition, the process is dynamic. Over time, indicators must change to reflect improved understanding of issues and associated problems, especially as informed by the involvement of industry participants. In the case of the EWGCC, ease of data collection was an important criteria when selecting appropriate performance measures.</p>
<p>Staff expertise. Performance measures have become an integrated component for many MPO and state transportation programs, however, freight-specific performance measures are still in their infancy. This will challenge staff members because they will have to develop freight expertise to develop an appropriate set of performance measures.</p>	<p>Investigate training and education opportunities. There are a number of training and education opportunities available to MPO staff to enhance understanding of freight, its common issues and concerns, and how it can be more effectively integrated within a transportation planning process. Peer exchange programs are particularly useful for developing staff expertise in specific subject areas. See Module 5 for a list of training and education resources.</p>
<p>Multimodal and intermodal trips. A typical MPO has not developed a transportation program that incorporates truck, rail, water, air, and pipeline commodity movements. The ability to calculate the performance of non-roadway movements will be a significant challenge for most MPOs.</p>	<p>Engage the private sector freight community. The private sector freight community can often provide the background and expertise to assist MPOs in evaluating the performance of nonroadway movements. In the case of EWGCC, the development of freight performance measures was conducted in cooperation with the region's FAC, a group of public and private freight stakeholders.</p>

Identifying Innovative Funding and Financing Techniques

Overview

MPOs often commit a large portion of their budgets to the maintenance and preservation of their existing roadway systems. In addition, transit, bike, and pedestrian improvement projects compete for limited transportation funds. This competitive funding environment leaves few resources available to fund freight-specific improvement projects. While roadway-related freight improvement projects are usually eligible for funding under federal and state highway programs, multimodal and intermodal projects must often be shoehorned into air-quality mitigation (e.g., congestion mitigation and air quality [CMAQ] improvement program) or safety programs (e.g., highway-rail grade-crossing separation programs). Rail improvements to private rail terminals and lines are usually not eligible for public support except indirectly through loan credit-support programs. Despite the link to economic development and jobs, many MPOs often find it difficult to justify spending money on nonroadway projects or projects that are perceived to inordinately benefit the private sector freight community.

Those freight projects that have been successfully financed and implemented often took advantage of unique blends of funds from multiple sources and often involved complex public-

private partnership (PPP) arrangements. These projects often require specialized finance skills not usually available within MPOs or local governments.

MPOs typically have three basic tools for investing in freight improvements:

1. **Grants from transportation programs.** Grants give states and the federal government the best control over the use of funds. Funds can be targeted to specific projects that solve freight project needs. Highway freight bottlenecks can normally be funded with all the core federal-aid programs. In addition, the long-standing FHWA Section 130 Rail grade crossing program provides dedicated funding to improve safety at rail grade crossings. Also, the CMAQ improvement program, created in ISTEA, has benefited freight rail and marine intermodal projects where there is an air quality benefit and the new Truck Parking Facilities Grant program of SAFETEA-LU will assist states in improving rest areas for trucks along the NHS.
2. **Loan and credit enhancement programs.** These programs include the Rail Revitalization and Improvement Funding program (RRIF), Transportation Infrastructure Finance and Innovation Act (TIFIA) program, and State Infrastructure Banks (SIBs).
 - RRIF is a loan and credit enhancement program for freight rail. It is oriented to the needs of regional and short-line railroads.
 - TIFIA provides loans, loan guarantees, and lines of credit for large projects. The program is modeled after a loan provided for the Alameda Corridor Transportation Project, a truck and rail corridor project improving access to the ports of Los Angeles and Long Beach. To qualify for assistance under TIFIA, a project needs a source of revenue to cover debt service costs; the total project must be valued at more than \$50 million (\$15 million for ITS projects) or 50 percent of the state's annual federal-aid highway apportionments, whichever is less; the federal TIFIA loan cannot exceed one-third of the total project cost; and the project's senior debt obligations must receive an investment-grade rating from at least one of the major credit rating agencies.
 - SIBs can provide loans for highway and in some cases transit improvements. All states are eligible to develop SIBs.
3. **Tax-expenditure financing programs.** These programs include accelerated depreciation, tax-exempt bond financing, and tax-credit bond financing. A tax-exempt bond is an obligation issued by a state or local government where the interest received by the investor is not taxable for federal income tax purposes. Tax-credit bond financing is a new form of federally subsidized debt financing, where the investor receives a federal tax credit in lieu of interest payments on the bonds. From the borrower's perspective, it provides a zero-interest-cost loan. These programs can be used to provide targeted, income tax benefits for investments made to improve the efficiency or increase the capacity of the freight system. Two key financing programs include the Private Activity Bonds program, which allows the issuance of tax-exempt private activity bonds for highway and freight transfer facilities; and the Grant Anticipation Revenue Vehicle (GARVEE) Bonds program, which allows states to issue tax-exempt debt backed by future federal-aid highway revenues.

A summary of potential funding opportunities for freight intermodal improvements is provided in Module 5.

Basic versus Advanced Approach

There are a variety of ways to successfully fund freight projects. The most basic approach is to integrate freight elements into other high-ranking transportation projects. Initial efforts by MPO staff to fund freight projects should focus on short-term operational improvements, which can be funded through local maintenance and preservation funds and potential economies of scale by integrating freight-specific elements into existing transportation projects, which typically

consist of roadway projects. This will require coordination with the local agency responsible for maintenance, such as a county’s public works department. In addition, staff will need to coordinate with those responsible for LRTP and TIP development and implementation to include freight improvements as part of larger roadway and corridor projects. This will allow freight projects to benefit from existing funding sources.

In many cases, the freight benefits are automatic. For example, developing barrier-separated through lanes on an expressway through a downtown area benefits all through traffic, including trucks. In other instances, freight can be inserted as a consideration. For example, a corridor study typically involves development of several alternatives. The needs of industry could be included in the design and operational parameters of one or more alternatives.

As freight programs develop, evolve, and begin to identify and develop their own specific projects, funding sources become more of a challenge, especially for nonroadway projects. In these instances, a more advanced approach is required to identify and secure funding. An advanced approach focuses on the identification and pursuit of freight-specific funding sources. There are a limited number of funding opportunities, many of which are anticipated to be strengthened by federal reauthorization. Others, such the CMAQ program, are limited to nonattainment areas and require competition with a full range of transportation projects. Advanced funding techniques will require a local champion within the MPO as well from the private sector for a given project. Many of the available sources require state and federal partners, such as the SIB and federal aid programs. Federal earmarks, which are driven by the political process, are one such source to fund major freight projects.

Key Activities

The ability to successfully fund projects is a crucial part of the MPO planning and programming process. Existing programs have long invested public funds in the roadway and transit systems, and more recently bike and pedestrian systems. However, with the exception of roadways, the majority of freight systems have been left to private industry to handle. Over the last few decades, public policy has begun to better address freight system needs. This has been motivated by continued growth and demand for overall transportation and the continued emphasis being placed on multimodal and intermodal systems.

This change in policy has been challenged by the lack of new funding sources. There are very few dedicated funding mechanisms to support freight improvements. Those that do exist tend to focus on areas of conflict with passenger traffic, such as safety projects to mediate at-grade rail crossings, or economic assistance, such as new rail spurs to serve new or expanded industrial locations. While many states have developed funding programs targeted at specific freight improvements, such as short-line rail infrastructure and port-related improvements, funding for these programs can be limited and may not solve the most immediate freight mobility needs of an MPO. This section focuses on the approaches available to MPO staff to secure funding for freight-specific improvements. The first approach works within established funding programs, while the second expands on more advanced activities that secure funding for stand alone freight projects.

Basic Approach

Activity	• Identifying Innovative Funding and Financing Techniques—Basic
Activity Type	• Programming
Level of Effort	• Moderate
Technical Complexity	• Moderate

Data/Analytical Tool Needs	<ul style="list-style-type: none"> Moderate. Requires data collection and analysis to support the positive impact of proposed projects; outreach to private partners to build support for specific projects.
Outreach/Partnership Needs	<ul style="list-style-type: none"> High. Requires significant outreach to private partners to build support for projects; activities should consist of interviews, focus groups, and formal freight technical advisory committee meetings.
Training/Education Needs	<ul style="list-style-type: none"> Moderate. Requires staff to combine freight knowledge and financing techniques; should explore resources and training available from FHWA and NHI. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Freight Project Identification, LRP Freight Element, Freight Project Impact Assessment, Freight Project Evaluation Criteria.

Key activities: Identify and fund short-term, “quick-fix” projects and integrate freight considerations into funded projects.

Step 1. Identify short-term operational projects. One of the most basic mechanisms for advancing pro-freight projects is to deal with quick-fix projects using available maintenance funds. Examples of quick-fix projects include traffic signal re-timings, turning radii improvements, and even pothole repairs. These types of projects can be identified through outreach to private partners and a review of local operating bottlenecks identified by the regional freight profile and freight project identification activities.

Step 2. Allocate maintenance and preservation funds. Once the projects have been identified, MPO staff must work closely with the local public works department to solicit project support and funding. This is a critical step, because MPOs need an implementation partner.

Step 3. Identify longer-term capital improvement projects that could effectively address freight bottlenecks. Steps 1 and 2 build support for more immediate investments for freight projects. Once that has been accomplished it is important to identify proposed capital projects that could be modified to improve freight mobility.

Step 4. Define specific opportunities or modifications to integrate freight elements into existing transportation projects. Once the projects have been developed, specific modifications should be developed. For example, new capacity added to an urban arterial could be reviewed to include geometric design considerations at key truck access points.

Step 5. Coordinate with appropriate staff to promote the inclusion of freight considerations. MPO staff should work with individual project champions or leaders to incorporate freight improvement elements into the established project definitions. These freight considerations will take advantage of the traditional funding sources already in place for the overall project.

Advanced Approach

Activity	<ul style="list-style-type: none"> Identifying Innovative Funding and Financing Techniques—Advanced
Activity Type	<ul style="list-style-type: none"> Programming
Level of Effort	<ul style="list-style-type: none"> High
Technical Complexity	<ul style="list-style-type: none"> High
Data/Analytical Tool Needs	<ul style="list-style-type: none"> High. Requires data collection and analysis to support the positive impact of proposed projects; conduct outreach to private partners to build support for specific projects.
Outreach/Partnership Needs	<ul style="list-style-type: none"> High. Requires significant outreach to private partners to build support for projects; activities should consist of interviews, focus groups, and formal freight technical advisory committee meetings.

Training/Education Needs	<ul style="list-style-type: none"> Moderate. Requires staff to combine freight knowledge and financing techniques; should explore resources and training available from FHWA and NHI. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Freight Project Identification, LRP Freight Element, Freight Project Impact Assessment, Freight Project Evaluation Criteria.

Key activity: Develop funding process for key freight improvement projects.

Step 1. Identify freight capital improvement projects. The regional freight profile and freight project identification activities will provide staff with a list of needs and project concepts. Based on these data sources, specific capital improvement projects should be selected for funding consideration.

Step 2. Identify project champions from public and private entities. Soliciting the support of private industry and public agencies is important in building support and funding for a specific project. These champions should be responsible for building support among local decision-makers to ensure funding is made available.

Step 3. Identify potential funding sources. There are a limited number of funding sources available for freight projects. There are the traditional funds available to MPOs which typically are available for roadway projects. CMAQ program funding can be used for nonattainment areas. Other sources to consider include federal aid grants, and public private partnerships. Staff should work with funding experts to fully explore the options.

Step 4. Build local support for specific freight projects. MPO staff and project champions should work together to promote a defined freight project. This activity builds support and increases the likelihood that the project will be funded and advanced.

Step 5. Pursue and compete for funds. Based on the successful identification of funding sources, and project promotion, staff should pursue and compete for funding allocations. Most MPOs have an established process for the allocation of funds. Freight projects should be integrated/inserted into this process for consideration.

Step 6. Track funding processes. Once a freight project has been successfully incorporated in the funding process, staff should monitor the process to ensure that the project is continuously promoted and advocated for as decisions for advancement are made.

Common Issues and Potential Solutions

There are many issues and challenges that face an MPO's ability to fund freight projects. Lack of available funding, competition for available funding, eligibility of freight projects for funding, and political support are but a few of the challenges faced by MPOs and their partners. The following summarizes the key challenges and offers potential solutions.

Common Issue	Potential Solution
Competition with other projects. The availability of funds makes it imperative that freight projects be competitive within the established ranking and prioritization processes. Given that freight is a relatively new discipline within MPOs, the ability to compete within these established processes is limited.	Develop freight-specific evaluation criteria. To put freight improvement projects on a level playing field with other potential transportation improvements, MPOs should develop evaluation criteria that reflect the economic and business development benefits of freight improvement projects, such as how they may improve shipping-time reliability or the extent to which they may attract or retain businesses and jobs in an area.

Public policy on freight transportation investments. With the exception of roadway-related freight projects, current public policy often hinders investments in existing freight infrastructure and operations. This relates to public investment or subsidy of private for profit operations. Many local, state, and federal agencies currently are struggling with this issue, because freight transportation continues to be challenged with continued growth.

Lack of dedicated funding. In general, there are a limited number of dedicated funding sources available specifically for freight transportation. While some states have programs like rail grade crossing safety programs, most local agencies must use existing programs or rely on their ability to access federal earmarks or other federal aid programs.

New project development partners. The successful development and implementation of freight projects often relies on private sector participation. This requires the development of relationships that currently do not exist in many areas. In addition, the development of these relationships is often challenged by the differences in planning horizons between public and private sector partners, as well as by the requirements placed on private entities to use public funds.

Develop champions and advocates for freight and freight planning. Few local decision-makers and general public members understand the link between efficient freight movements and quality of life. Articulating the positive benefits of freight can help create advocacy for freight planning and garner support for freight improvement projects.

Investigate existing funding programs. Many states and metropolitan areas have existing programs that can be used to fund specific types of freight improvements. Many states manage industrial rail access programs, which provide capital to short-line and regional railroads for completing improvements. Other states manage similar programs for other modes. MPOs should investigate the types of funding programs that could be made available for freight improvements.

Develop outreach strategies. There are a number of strategies that can be employed to more fully engage the private sector freight community in the planning and programming process. Users should also reach out to economic development agencies and chambers of commerce, because they often have existing relationships with the private sector and many even manage their own funding and financing programs.

Assessing Freight Project Impacts

Overview

A critical part of transportation planning and programming is the ability to measure the potential impact of specific projects. These impacts feed into the overall program and help identify the best projects and their resulting impacts on a variety of factors. Specifically, an impact assessment provides a decision tool for comparing investments in alternative projects, provides justification for government investment and the type of government investment, and calculates distributional benefit-cost ratios. The questions the assessment answers include the following:

- What are the transportation system performance impacts of the project?
- What are the nonfreight implications of freight projects?
- What is the economic effect of improvements to transportation system performance?
- What are the broader industry and economy effects from direct transportation impacts?
- Who benefits from improved freight transportation?
- What are the logistics and business process effects of improved freight transportation?
- Will the freight transportation project lead to business attraction or retention for a region?

To accurately conduct a thorough assessment, MPOs must use a variety of methods. The appropriate method or process will depend on the type of project and anticipated impacts. MPO staff should develop a set of activities that best address project goals. Figure 3.2 illustrates the types and the interrelationships of the various methods used to evaluate transportation investments.

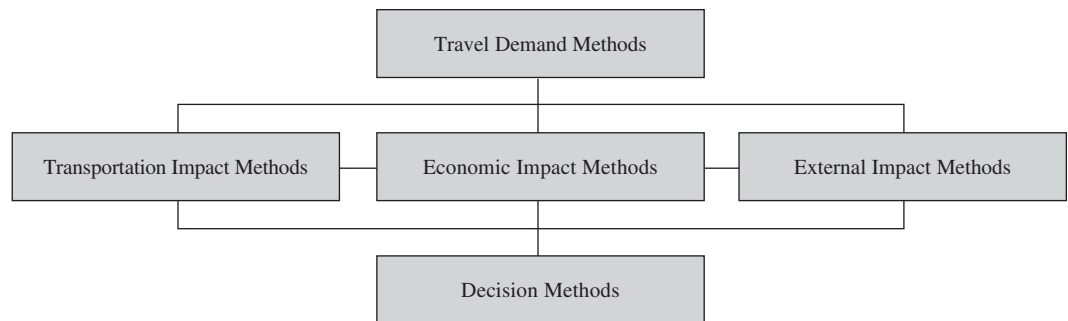


Figure 3.2. *Framework for evaluating transportation investments.*

Figure 3.2 represents an idealized framework that can be applied to all transportation investments. It is idealized in the sense that several models do not fit neatly within a single box. It does, however, provide a convenient framework for describing how freight investments can be converted into public benefits.

- **Travel Demand Methods** include the traditional four-step models (trip generation, trip distribution, mode split, traffic assignment), with special attention paid to truck and rail diversions. They also include some of the current thinking on freight models.
- **Transportation Impact Methods** determine the transportation-related benefits from the proposed improvements. These can include reduced roadway maintenance costs, reduced operating costs, and reduced shipper costs. These also include hybrid models that blend multiple methods together to address specific needs (Highway Economic Requirements System [HERS] for highways, ITS Deployment Analysis System [IDAS] for ITS deployment, etc.).
- **External Impact Methods** include nontransportation benefits attributable to transportation improvements. These include land use, safety, security, and environmental.
- **Economic Impact Methods** convert the various impact measures into direct and indirect economic benefits. These include input/output, regional simulation, and regression models.
- **Decision Methods** include methods such as benefit-cost and internal rate of return used to evaluate and help determine the best allocation of public investments.

Basic versus Advanced Approach

Freight project impact assessment activities range in complexity based on the type of project, the geographic area, and the anticipated impact areas. In general, assessment activities tend to be more complex than some other transportation planning and programming activities.

At the most basic level, nonquantitative evaluations can be undertaken to determine potential impacts on communities and key regional industries. The basic approach for freight project impact assessments focuses on qualitative assessments generated from public and private stakeholders and the use of traditional tools historically used by MPO staff, such as travel demand models.

More rigorous assessments involve the use of a variety of tools and models to quantitatively measure potential impacts. The advanced approach builds on the basic approach by increasing the use of tools and models to conduct the project impact assessments. The outline of methodologies provided summarizes the types of analyses available to MPO staff based on the type of project.

Key Activities

The assessment of projects is closely related to the project evaluation criteria and builds on the identification of projects. The results feed into the performance and funding as part of the project justification. Assessment activities focus on the calculation of anticipated impacts to system per-

formance, whether they be economic-, environmental-, or transportation-specific. The approaches focus on activities that identify potential impacts from the qualitative and quantitative perspectives. Qualitative efforts focus on interviews and focus groups with impacted communities (private and public) and can be undertaken with low levels of effort as part of the basic approach. The quantitative activities focus on the use of models and more rigorous stakeholder input.

Basic Approach

Activity	<ul style="list-style-type: none"> Assessing Freight Project Impacts—Basic
Activity Type	<ul style="list-style-type: none"> Programming
Level of Effort	<ul style="list-style-type: none"> Low to Moderate
Technical Complexity	<ul style="list-style-type: none"> Low
Data/Analytical Tool Needs	<ul style="list-style-type: none"> Moderate. Conduct significant private partner outreach to evaluate qualitative impacts; use existing travel demand model, as appropriate.
Outreach/Partnership Needs	<ul style="list-style-type: none"> High. Conduct significant outreach to private partners to build support for projects; activities should consist of interviews, focus groups, and formal freight technical advisory committee meetings.
Training/Education Needs	<ul style="list-style-type: none"> Low. Requires staff to apply freight knowledge to impact analyses; should explore resources available from FHWA. http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> Regional Freight Profile, Freight Project Identification, Freight Project Evaluation Criteria, Freight Project Funding and Innovative Financing.

Key activities: Conduct qualitative assessments of the impacts of freight projects.

Step 1. Identify potential impact areas. Individual projects will have specific impacts, however, these impacts will fall into similar categories, including economic, environmental, community quality of life, and transportation access and mobility.

Step 2. Identify key stakeholders. To ascertain the specific impacts, it is necessary to identify the key stakeholders. These stakeholders will consist of industry representatives (carriers, manufacturers, retail operations, etc.) and the general public (residential areas, community centers, etc.) located in close proximity to the project area. These stakeholders will be accessed to identify key qualitative impacts.

Step 3. Conduct stakeholder interviews and focus groups and analyze findings. The list of stakeholders identified in Step 2 will be contacted and engaged in a series of interviews and focus groups to identify impacts and issues.

Step 4. Review existing transportation model for application. Basic model outputs can be used to highlight problem areas and project impacts. Many MPOs may have already developed truck assignments that can be used in existing travel demand models to calculate the impact on truck operations. If the existing models have the capabilities, their outputs should be used to calculate project impacts.

Step 5. Develop recommendations and impact assessment summaries. Based on the stakeholder input and potential model outputs, a summary of the impacts should be developed. The results will feed into project prioritization and funding activities.

Advanced Approach

Activity	<ul style="list-style-type: none"> Assessing Freight Project Impacts—Advanced
Activity Type	<ul style="list-style-type: none"> Programming
Level of Effort	<ul style="list-style-type: none"> High

Technical Complexity	<ul style="list-style-type: none"> • High
Data/Analytical Tool Needs	<ul style="list-style-type: none"> • High. Relies on the data collected and tools developed as part of the regional freight profile, the freight needs and deficiencies, the freight project identification, the freight LRP element, and all the evaluation activities. Also, relies on significant private partner outreach.
Outreach/Partnership Needs	<ul style="list-style-type: none"> • High. Conduct significant outreach to private partners to build support for projects; activities should consist of interviews, focus groups, and formal freight technical advisory committee meetings.
Training/Education Needs	<ul style="list-style-type: none"> • High. Requires staff to apply freight knowledge to project impact analyses using advanced tools, such as models or simulation programs; should explore resources and training available from FHWA and NHI. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	<ul style="list-style-type: none"> • Regional Freight Profile, Freight Project Identification, Freight Project Evaluation Criteria, Freight Project Funding and Innovative Financing.

Key activities: Develop and implement quantitative project impact assessment process.

Step 1. Classify the type of project. To assign the appropriate methods for analyzing large-scale freight projects, staff must first classify the project in terms of its spatial, modal and action/intervention characteristics:

- **Type of Facility Location:** (a) local entry/access point, (b) regional corridor, (c) facility;
- **Type of Modes Involved:** (a) air, (b) water, (c) rail, (d) truck, (e) combinations;
- **Type of Motivation:** (a) capacity, (b) access, (c) speed/flow, (d) cost, (e) reliability; and
- **Type of Investment:** (a) expand existing facility, (b) build new or alternative facility, (c) provide new modal service, (d) make an operational improvement to existing facility.

Step 2. Define the relevant evaluation issues. Based on the type of project and potential impacts, staff should identify the key objectives and policies to be addressed, for example:

- National freight network capacity or LOS,
- National economic growth and productivity and international trade,
- Local or regional income and economic development,
- Benefits to particular mode, carrier, or industry-specific targets, and
- Allocation of costs and benefits to assess equitable funding.

Step 3. Select and apply the relevant tools for calculation of transportation impacts. The primary analysis tools will establish direct impacts. The types of tools consist of the following:

- **Network Analysis:** Providing links, nodes, capacity and performance—rail, highway;
- **Facility Handling Analysis:** Capacity and cost for ports, terminals, bridges, tunnels; and
- **Shipper and Operator Logistics Analysis:** Ultimate cost implications of mode and facility choices.

After selecting the required type of tool, it is critical to identify the types of input data needed and potential sources needed to use those tools for a freight investment analysis. The types of data include the following:

- Vehicular traffic in terms of origin-destination, time, distance, vehicle class or purpose;
- Commodity flow patterns in terms of volume, weight, or value by commodity type;
- Freight flow classifications in terms of bulk, break bulk, container, truck load, less than truck load;
- Prices and costs for operators and users; and
- Assumptions on values of time delay, schedule reliability, and cost-sensitivity.

Some projects will have complicating factors not addressed by the primary methods that cannot be ignored. These are primarily cases where the project focuses on a single mode, but has a secondary impact on other modes because it either (a) *directly* affects the cost, performance, or level of demand for other modes or (b) *indirectly* shifts the relative differences in cost or performance among modes. These secondary transportation performance impacts need to be considered as part of the impact analysis and they are one of the critical features of many large scale freight projects.

If any of these secondary impacts are expected, additional tools should be selected to characterize the nature of those impacts, which will then be used to provide additional input to the primary analysis tools. These types of tools include the following:

- Shipper logistics choice models,
- Intermodal performance models, and
- Analysis of economic impact on modal competitiveness.

Step 4. Select and apply the relevant tools for calculation of expected economic impacts.

Having identified the direct effects on freight flow, performance and cost in Step 3, the next step is to provide guidelines for translating those findings into relevant policy impacts (as previously identified in Step 2). The relevant policy impacts will be defined in terms of magnitude and incidence, broken down by the following dimensions:

- **Form of Economic Impact:** Cost reduction, productivity, income generation, jobs;
- **Geography of Impacted Markets:** Local, regional, national, international; and
- **Distribution of Economic Impacts:** In terms of shipper/user (commodity and economic sector) categories or mode/operator categories, as applicable to address policy issues.

To calculate or estimate those impacts, it is necessary to apply additional analysis models that will translate the “Step 2 transportation impacts” into the selected types of “Step 4 economic impacts.” The types of economic models that can be applicable for each type of economic impact include the following:

- Supply chain models,
- Regional economic growth or impact models,
- National production or productivity models, and
- International trade models.

Step 5. Apply relevant decision methods. Having estimated the expected economic impacts from proposed freight investments in Step 4, the final step is to present those economic impacts in a format that can be effectively used for investment decision-making. The user will be free to select among various project ranking and selection methods, including the following:

- Benefit-cost analysis,
- Cost-effectiveness analysis,
- Equity impact analysis, and
- Multicriteria weighting analysis.

Common Issues and Potential Solutions

Assessing proposed project impacts can be a complicated process, especially if the ultimate goal is to calculate quantitative measurements. Major challenges include data and tool availability, the ability and expertise to use the tools, and the development of new processes to

specifically address freight issues. The following summarizes the key challenges and offers potential solutions:

Common Issue	Potential Solution
Lack of available data and tools. The use of tools and models requires significant data resources. These data are not always available and can be costly and difficult to collect. Many MPOs do not have a suite of tools to assess freight transportation projects. Air quality and travel demand models may be common, but they do not always account specifically for freight. Other models that provide specialized calculations, such as economic impacts, are less common.	Investigate sources of freight data and tools. There are a number of publicly available freight data sources and tools that can be useful. State DOTs, FHWA, and other agencies are potential sources of freight data and in many cases are sources of tools and analytical support. Many states are supporting freight planning at their MPOs by developing freight models for them. State DOTs can also be important sources for other tools and techniques, such as benefit-cost analysis and others. See the Data and Analytical Tools section of this module for more guidance.
Development of new processes. The effective use of existing and new models specifically designed or enhanced to accommodate freight project characteristics will likely require the creation and adoption of new processes. These will need to be effectively integrated into existing processes. In addition, to assess effectively the impacts of freight projects, a variety of activities will be required. One of the most difficult activities will be the integration of the various results to develop final conclusions and recommendations.	Designate a Freight POC. A freight technical lead should be designated within the MPO. This POC can act as the liaison between the MPO's various transportation initiatives and between the MPO and other agencies and stakeholders to ensure that freight issues are addressed within multiple MPO activities.
Lack of staff expertise. Most MPOs currently do not have staff with extensive experience assessing freight project impacts. This will require the development of new skills.	Investigate training and education opportunities. There are a number of training and education opportunities available to MPO staff to enhance understanding of freight, its common issues and concerns, and how it can be more effectively integrated within a transportation planning process. See Module 5 for a listing of training and education resources.

Data and Analytical Tools

Overview

There is a wide variety of data that small- and medium-sized MPOs would like to have to support freight policy, planning, and programming activities. In fact, data availability and quality will likely be the most significant consideration driving an overall transportation program. Specific freight data and analytical tools have been called out within each of the subject areas to reflect the fact that they directly impact all aspects of a freight transportation program. The key types of freight data include the following:

- Commodity flow data describe the types of commodities that move in a region, the origins and destinations of the flows, and the modes used;
- Traffic data describe volumes of vehicle movements on critical facilities by mode;
- Trip origin-destination data describe where freight shipments are moving;
- Travel time data describe how long it takes to move from point A to point B;
- Freight rates and costs describe total transportation costs;
- Trip generation characteristics of different types of land uses (for impact analysis) describe the types of industries that generate the largest number of trips;

- Emissions from freight activity describe air quality and noise impacts of freight traffic; and
- Accident and safety data related to freight activity describe accident rates and safety implications of freight movements.

In a number of instances, these types of data are available from public sources. However, these publicly available data are not often available with sufficient detail to be useful to small- and medium-sized MPOs. Thus, these MPOs may be faced with the need for tools that can be used to estimate local data from state and federal sources or they will have to collect data themselves.

There are a variety of analytical tools in use today throughout North America. These tools allow MPOs to forecast traffic movements, measure air quality impacts, evaluate economic impacts, and analyze and display data and networks geographically. More advanced tools work in concert with other tools to conduct specific calculations relating to modal diversion, mode choice, travel behavioral patterns, performance measures, and so forth. Examples of analysis tools include the following:

- Economic impact models,
- Travel demand models,
- Air quality impact models,
- Performance-based models (e.g., Surface Transportation Efficiency Analysis Model [STEAM], IDAS),
- Discrete choice models and modal diversion models, and
- GIS.

Basic versus Advanced Approach

The development of a comprehensive data collection program and supporting analytical tools demands a significant effort and commitment by MPO staff. The basic approach focuses on initial data collection activities. This approach consists of the steps required to describe and quantify freight movements in a region and directly supports the development of a regional freight profile and many subsequent activities. The basic approach works with established and available data sources from local, regional, state, and federal sources. A limited number of surveys and interviews are included to provide more detailed descriptions of key freight characteristics and movements. The advanced approach builds on the basic approach. It focuses on the development and application of a range of tools and models to analyze the available data. Development of a truck assignment feature within a regional travel demand model is an example of an advanced approach, because it integrates basic data already collected by many MPOs, such as traffic counts and vehicle classification data, and incorporates behavioral characteristics captured from surveys and interviews.

Key Activities

All MPOs have data collection programs that support their transportation programs. These data collection programs rely on local, state, and federal initiatives. For example, state DOTs provide traffic volumes and vehicle classification counts for the state highway system. The U.S. DOT provides extensive data resources through the BTS. Local agencies augment these resources with local data that provide congestion, LOS, and traffic volumes on local highways. In addition, data typically are available from major ports, airports, and railroads. The data collection activities described in this section focus on the effective integration of available data sources, the inclusion of freight-specific data, and the collection of more detailed freight data through use of surveys and interviews.

The data collection program provides descriptive information that can be used to develop a regional profile, identify needs and deficiencies, and ultimately support the development of improvement projects. These data collection activities also feed into available tools and models.

This section identifies the types of tools and models used by MPOs and describes the opportunities that exist to use them for freight planning and programming activities. For example, small- and medium-sized MPOs can develop freight and truck models to analyze existing and future system performance. Multimodal freight models are rare but there is some guidance in NHI-sponsored courses and other resources on how these types of models are applied in MPO settings. More often, small- and medium-sized MPOs develop simple truck model add-ons to their existing travel demand models. A simple technique for doing this with default data is described in FHWA's Quick Response Freight Manual. *NCHRP Synthesis 298* also describes this technique in general terms and provides alternative sources for truck trip generation data that can be used in these models.

Basic Approach

Activity	• Data and Analytical Tools—Basic
Activity Type	• Policy, Planning, and Programming
Level of Effort	• Moderate
Technical Complexity	• Low to Moderate
Data/Analytical Tool Needs	• N/A
Outreach/Partnership Needs	• Moderate. Requires outreach to private partners through interviews, focus groups, surveys, and formation of a freight technical advisory committee to support a wide range of activities that rely on data and input.
Training/Education Needs	<ul style="list-style-type: none"> • Moderate. Requires that staff understand and be able to work with available freight data sources; should explore resources and training available from FHWA and NHI. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Supports all activities.

Key Activity: Compile readily available data from public sources and conduct simple surveys.

Step 1. Identify and collect readily available freight data. The types of data that are likely to be available to small- and medium-sized MPOs will include the following general sources:

- Vehicle classification counts on state roads (from state DOT),
- Truck-involved accident data on roads (often available from state DOT),
- Data on rail tonnages and commodities from Surface Transportation Board (STB) Carload Waybill Sample,
- Data on waterborne commerce tonnages and commodity from Army Corps of Engineers Waterborne Commerce Series,
- County-level commodity flow data (from TRANSEARCH). (The cost of this data may be prohibitive for some small MPOs but a number of states have purchased these data for their MPOs),
- Truck trip generation data for different land uses (available in *NCHRP Synthesis 298*), and
- General economic data (employment by industry at the county level in County Business Patterns).

Step 2. Collect basic stakeholder data through interviews and surveys. In addition to the available data sources, it is useful to conduct modest surveys of freight stakeholders to get information about the location of major freight facilities, the volumes of traffic they handle, and the general origin-destination characteristics of the traffic.

Step 3. Feed data into other freight policy, planning, and programming activities. Freight data represent the basic ingredients for the majority of guidelines provided in this Guidebook. They impact the definition of goals and objectives, the development of a regional profile, the identification of needs and projects, and all the activities used to program and fund improvement projects.

Advanced Approach

Activity	• Data and Analytical Tools—Advanced
Activity Type	• Policy, Planning, and Programming
Level of Effort	• High
Technical Complexity	• High
Data/Analytical Tool Needs	• N/A
Outreach/Partnership Needs	• High. Requires outreach to private partners through interviews, focus groups, surveys, and formation of a freight technical advisory committee to support a wide range of activities that rely on data and input.
Training/Education Needs	<ul style="list-style-type: none"> • High. Requires that staff understand and be able to work with available freight data sources and tools such as travel demand models; should explore resources and training available from FHWA and NHI. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Supports all activities.

Key Activity: Develop local data collection program and develop analytical tools as appropriate.

Step 1. Identify and collect readily available freight data. Before a data collection program can be developed, it is important to identify what is already available (see Step 1 under Basic Approach).

Step 2. Identify data needs and data collection activities. After reviewing what is available, MPO staff should develop a data collection plan that will be used to fill in the missing areas of data based on what the MPO is trying to accomplish. This should include expanded count programs, roadside intercept surveys, freight facility surveys, and stakeholder interviews. The following summarizes these activities:

- **Vehicle Classification Count Programs.** Generally, vehicle classification counts are the easiest type of local data to collect. They can be collected at a relatively low cost and are useful for identifying critical corridors, monitoring growth in truck activity, and validating models. MPOs should work closely with state DOTs so as not to duplicate efforts. Counts on nonstate facilities (especially major arterials and local roads that connect to major freight facilities) are good candidates for local data collection.
- **Roadside Intercept Surveys.** Roadside surveys are useful to get an idea of commodities that are moved on key facilities as well as for getting origin-destination data. The problem with roadside surveys is that there are very few places where they can be conducted without disrupting the flow of traffic. Weigh stations, inspection stations, rest areas, and truck stops are some of the types of places where MPOs are conducting roadside surveys. It may be possible to find these types of places on major roads entering and exiting a region so these are used for this type of data collection.
- **Freight Facility Surveys.** Interviews or mail out surveys can be conducted to get information on the volumes and types of goods that are handled at major facilities. This can be useful to develop trip generation data.
- **Stakeholder Surveys.** A limited number of interviews should be conducted with key stakeholders to gather detailed information that can be used to qualify and describe the quantitative datasets described. One of the key activities that will be addressed by this effort will be the development of specific logistics patterns and supply chain management techniques.

Step 3. Identify and review available analysis tools. There are many types of analysis tools in use today to support transportation planning and programming activities. Before specific data collection activities begin, it is important to understand the extent that these tools are available

and planned for use in freight initiatives. The selected tools will in part dictate the type of data that will be required.

Step 4. Identify and develop new or enhanced analysis tools. Based on a review of the available tools, MPO staff should determine which tools will best support freight program development. In some instances, this may require enhancements to existing models or development of new models. The development of new models can be a significant undertaking. Staff is encouraged to work within established models when possible. For example:

- **Travel Demand Model.** An existing travel demand model may or may not have truck assignments. If it does, staff should review the development process and data requirements. If it does not, staff should work with the modeling staff to ascertain the requirements necessary to develop one.
- **Economic Development Model.** There are a variety of economic impact models. Some provide sketch tool planning, others consist of data intensive input and output elements which yield benefit-cost ratios. If an MPO does not currently have an economic impact model, staff should review applicability of models used by counterparts in other locations.
- **Air Quality Model.** Development of an emissions inventory is an important element of regional planning. Most MPOs have some experience in this arena. The typical mobile source analysis focuses on highways, including trucks. Emissions factors also are available for other modal vehicles. MPO staff should review available models and data to determine what is available to measure the impact of freight operations.

Step 5. Conduct data collection. MPO staff should develop and implement a data collection program designed to enhance existing data and support the development and use of individual tools and models. Steps 1 through 4 describe the types of activities that the data collection program will support.

Step 6. Integrate data into key activities and established tools to support development and maintenance of the freight-related activities addressed by this Guidebook. This final step should effectively manage and integrate the data collection and tool applications, as appropriate, to support the subject areas defined and discussed in this Guidebook.

Common Issues and Potential Solutions

There are several key challenges that impact the development of a successful data collection program and the effective use of quantitative tools and models. These challenges include available funding, level of staff expertise, soliciting input from private partners, maintaining the program over time, and the need to support multiple activities. The following summarizes the key challenges and offers potential solutions.

Common Issue	Potential Solution
Funding. The development and implementation of a comprehensive data collection program and the tools and models it supports are significant undertakings by MPO staff and its partners. Data collection can be costly, as can be tool and model development.	Investigate cost-effective sources of freight data and tools. There are a number of publicly available freight data sources and tools that can be useful to MPOs and that have minimal costs. In addition, state DOTs, FHWA, and other agencies are potential sources of freight data and in many cases are sources of tools and analytical support. There are many opportunities for MPOs to combine different data sources to develop a more comprehensive understanding of freight movements in their area.

Staff expertise. Many freight-specific datasets and analytical tools are still in their early stages and many MPOs are still in the early stages of applying them to their programs.

Investigate training and education opportunities.

There are a number of training and education opportunities available to MPOs to enhance understanding of freight, its common issues, and how it can be more effectively integrated within a transportation planning process. Peer exchange programs can be effective ways to build staff expertise in particular subject areas. See Module 5 for a listing of training and education resources.

Private industry participation. Private sector freight data are often considered proprietary and therefore confidential. This complicates the data collection activities and the completeness of the regional freight profile.

Develop outreach strategies. There are a number of strategies that can be employed to more fully engage the private sector freight community in this process. Before sharing data with an MPO, most private sector freight stakeholders want to see the potential benefits of providing data and participating in the process. Developing outreach strategies that describe the potential benefits of participation can help, such as providing missing data necessary to promote an improvement project. Ensuring confidentiality of data is another key factor. The Outreach and Partnerships section in this module describes some of the more successful strategies.

Ongoing commitment. Data collection activities should be undertaken as an ongoing program to develop current and trend descriptions of the region's freight system. It is important that initial data collection activities not be so elaborate and costly that they are seen as one time events.

Dedicate yourself to data collection. MPOs must realize that data collection is an ongoing, dynamic process. MPOs should consider building time and budget for collecting and reviewing freight data into their UPWPs. In an environment that has limited data collection dollars, it is critical that staff work to include freight considerations or enhancements to existing programs. For example, annual count programs can be revised or modified to include key inter-modal connectors and truck corridors.

Training and Education

Overview

In recent years, freight training and education have become significant focus areas for MPOs and state DOTs as staff continues to expand and develop freight transportation programs. Training opportunities, while still limited, have expanded to meet these demands. FHWA has taken the lead for much of the training and education activities through its FPD program. Key components of this program include a peer exchange program and the Talking Freight seminar series. In addition, the NHI has partnered with FHWA to facilitate the development of specific courses in the areas of transportation planning and freight modeling. At a more localized level, specific vendors provide training for their tools and products. For example, travel demand model vendors provide training seminars and model conversion services to assist MPOs and state DOTs use their models. In addition to these formalized training and education programs, outreach activities often are used by MPOs and state DOTs to educate system users and impacted communities of the positive benefits of efficient freight transportation.

Freight training and education efforts typically focus on the following areas:

- **Promote need for efficient freight transportation.** Freight is an integral part of an integrated, multimodal transportation system; it must be incorporated to achieve a truly balanced system.

- **Identify freight as relevant component of the transportation system program.** While MPOs typically have limited control over non-highway modes of freight transportation, it is critical that local transportation programs address all established aspects of freight transportation, because each mode/operation impacts the community.
- **Define opportunities for integrating freight into existing programs.** Effective integration of freight operations into an established program will enhance a region's ability to predict and manage congestion, safety, and key bottlenecks.
- **Provide specific instruction on individual analysis tools.** There are many tools available to staff, including economic impact, travel demand, and air quality; these tools typically are provided with instruction and training.
- **Define and provide wide variety of freight data and research.** Many MPOs and state DOTs have undertaken freight initiatives that can be used as best practices; in addition, organizations like NCHRP, TRB, and AASHTO have and continue to develop resources to assist MPOs.
- **Build political and technical support for freight program development.** Outreach is a critical component in the education process; impacted citizens and leaders must understand the importance of freight transportation.

Basic versus Advanced Approach

The distinction between basic and advanced approaches to freight training and education is driven by the type of activities that an MPO is undertaking, as well as the resources available. For an MPO with limited freight background, the training and education needed to undertake the development of freight policies and a regional freight profile may consist of FHWA's Talking Freight seminar series and peer-to-peer exchange program, combined with outreach to a limited number of private partners. For MPOs that have developed a basic description of their freight system and are engaging in more advanced analytical and modeling techniques, the training and education activities may consist of attendance at formal training courses or bringing technical experts in-house to train staff.

Key Activities

Training and education activities should focus on the defined needs of an MPO. The exercises defined in Module 2 provide staff members with a comprehensive analysis of what they do and do not know about freight transportation. This section defines the types of training and education activities that can be undertaken to meet basic and advanced needs. It is important to acknowledge that specific topics should be based on intended program direction. The types of activities will fall into the following categories:

- **Staff Initiative.** Many staff members have developed expertise in freight through their own actions, such as regular review of industry periodicals and other literature available on specific modes, supply chain management, and trade.
- **Peer Exchange.** Learning from the experiences of counterparts around the country is a simple yet invaluable mechanism. In fact, FHWA's freight peer-to-peer program was developed to facilitate this kind of activity.
- **Private Industry Outreach.** One of the best ways to learn about freight is to meet with representatives from industry. They will provide real-life descriptions of business operations, key decision factors, and transportation needs.
- **Training Courses.** Training courses provide specific instruction on a particular subject. This type of educational activity is most useful for a staff that is undertaking a specific advanced freight transportation initiative.

Basic Approach

Activity	• Training and Education—Basic
Activity Type	• Policy, Planning, and Programming
Level of Effort	• Low
Technical Complexity	• Low
Data/Analytical Tool Needs	• Moderate. Requires outreach to private partners to collect data on the freight system; collect and review available research and data from available sources (other MPOs, state DOTs, FHWA, etc.)
Outreach/Partnership Needs	• Moderate. Requires limited but ongoing outreach to a limited number of private partners to build knowledge base of freight operations and local issues.
Training/Education Needs	• http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Supports all activities.

Step 1. Evaluate training needs. It is critical that the staff review the freight policies, the results of the Module 2 exercises, and the key characteristics and needs of the region to ascertain areas of required expertise.

Step 2. Identify available training opportunities. Based on the results of Step 1, staff should identify key training opportunities. At the basic level, this will include personal initiative to become familiar with industry operations, outreach to private partners, and participation in peer groups such as FHWA's peer-to-peer exchange program and Talking Freight seminar series.

Step 3. Participate in training activities. Once the key opportunities have been identified, staff should develop and implement training activities on a regular basis. The activities defined in Step 2 can be used repeatedly over time to enhance expertise in freight transportation.

Advanced Approach

Activity	• Training and Education—Advanced
Activity Type	• Policy, Planning, and Programming
Level of Effort	• Moderate to High
Technical Complexity	• Moderate to High
Data/Analytical Tool Needs	• Moderate. Requires outreach to private partners to collect data on the freight system; collect and review available research and data from available sources (other MPOs, state DOTs, FHWA, etc.)
Outreach/Partnership Needs	• Moderate to High. Requires ongoing outreach to private partners to build knowledge base of freight operations and local issues.
Training/Education Needs	• http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Supports all activities.

Step 1. Evaluate training needs. It is critical that staff review the freight policies, the results of the Module 2 exercises, and the key characteristics and needs of the region to ascertain areas of required expertise.

Step 2. Identify available training opportunities. Based on the results of Step 1, staff should identify key training opportunities. At the advanced level, this will build on the basic activities to include more focused outreach to private partners (such as focus groups) and identification and scheduling of more intensive freight training courses (such as NHI's *Integrating Freight into Transportation Planning Process* and *Uses of Multimodal Freight Forecasting in Transportation*

FHWA's FPD Program

In response to customer needs, the FHWA's Office of Operations launched the FPD program. This initiative assists state DOTs and MPOs in developing the skills and knowledge needed to meet the challenge of growing freight flows on the nation's transportation system. The FPD program consists of four key elements: training, education, technical assistance, and a resource library.

- **Training.** The FPD program provides training, including short courses and seminars, on a broad range of freight topics. Two FPD courses were offered through NHI in fiscal year (FY) 2005: *Integrating Freight in the Transportation Planning Process* and *Uses of Multimodal Freight Forecasting in Transportation Planning*.
- **Education.** The FPD program works with the academic community to promote needed changes in transportation planning and logistics degree programs critical to ensuring the future availability of appropriately trained freight professionals. Many university-based freight and related degree programs are identified on the new FPD web site at <http://ops.fhwa.dot.gov/freight/FPD/index.asp>.
- **Technical Assistance.** The FPD program provides assistance to states and MPOs engaged in transportation and freight planning. The ongoing Talking Freight seminar series offers a no-cost way for freight transportation professionals to broaden their knowledge and develop new skills. Seminars are held monthly and are open to all interested parties through http://ops.fhwa.dot.gov/freight/fpd/talking_freight.htm. The Freight Planning LISTSERV, located at www.fhwa.dot.gov/freightplanning, also provides a forum for peer information exchange.
- **Resource Library.** The FPD program offers a web-based one-stop shop for current information and state-of-the art practices pertaining to freight. The resource library is located on the FPD web site.

Source: http://www.ops.fhwa.dot.gov/aboutus/one_pagers/fpd.pdf.

Planning courses). In addition, training should be identified for specific tools and models that staff considers critical for the support of the freight program development.

Step 3. Develop formal training program. Staff should define an annual training program that incorporates the needs of the MPO, the availability of training courses, and the availability of funding to support staff attendance. This program should appear in the MPO's UPWP.

Step 4. Implement training program. The implementation of the training program should correspond to the current level of expertise and the planned freight activities. For example, a peer-to-peer exchange could be scheduled to provide access to expertise in a specific area or, if the MPO is scheduled to update its travel demand model, staff should work with FHWA and NHI to schedule the current freight modeling course.³

The program should be reviewed and updated annually to provide an ongoing opportunity for staff members to develop and enhance their freight expertise.

³FHWA-NHI-139002, *Uses of Multimodal Freight Forecasting in Transportation Planning*. http://www.nhi.fhwa.dot.gov/training/course_detail.aspx?num=FHWA-NHI-139002&cat=&key=&num=139002&loc=sta=%25&tit=typ=&lev=&ava=&str=&end=&drl=

Common Issues and Potential Solutions

There are several key challenges that impact the development of a successful training and education program. These challenges include availability of funding, availability of staff, and availability of training opportunities. The following summarizes the key challenges and offers potential solutions:

Common Issue	Potential Solution
Funding. The development and implementation of a comprehensive training and education program can be costly.	Investigate low-cost training opportunities. FHWA's Talking Freight seminar series is conducted via conference call and the Internet and therefore is a low-cost option. The peer-to-peer exchange program can also be a low-cost alternative. In addition, FHWA often "sponsors" a select number of NHI courses each year at little or no cost to participating agencies. MPO staff should work with state DOT and FHWA partners to investigate these and other low-cost training opportunities.
Staff availability. Many MPOs have staff members operating in an environment where they have multiple responsibilities. For example, freight activities often represent additional work for a staff member as opposed to a reassignment to work exclusively in the area of freight.	Promote the importance of freight to build management support. Freight is an up and coming field that will only receive more attention in the coming years. Staff should develop a brief overview that describes the freight system, its impact on the region, and the types of encouragement and training resources available.
Availability of training opportunities. Although freight training opportunities do exist, they are limited. This limits the type of training available, as well as the ability to schedule training courses in a timely manner.	Communicate need for training to state and federal partners. Staff should work with state and federal partners to promote the need for training. This type of support and outreach will stress the need for training and will encourage the expansion of existing courses and the development of new courses.

Outreach and Partnerships

Overview

MPOs with successful freight planning programs typically cite the active participation of freight stakeholders as a key success factor. Participating firms and individuals serve as resources throughout the transportation planning process, with activities that range from definition and review of freight policies to identification of a regional freight profile, to project prioritization and implementation. Such assistance and support are critical to ensure that the region's freight needs are correctly defined and that freight projects receive an appropriate level of priority. Although outreach activities cannot and should not serve as the primary tools for analyzing existing conditions and developing the freight transportation program, they can be used effectively to build staff expertise in freight, logistics, and supply and distribution patterns, and in other areas. Outreach activities can also be used to build political and community support for a freight planning program. Having private sector participation assists MPOs in a number of ways, such as

- Facilitating private sector acceptance of transportation program elements,
- Promoting the strategic role of freight to the region's economic competitiveness,
- Improving industry support of and cooperation with freight data collection efforts,
- Leading efforts for creating public-private freight partnerships, and
- Rallying political support for freight-related projects.

Identifying target firms and individuals can actually be somewhat easier with small- and medium-sized MPOs because the pool of target candidates tends to be smaller and better known.

Logical starting points are area chambers of commerce, traffic clubs, and logistics organizations. Typically, the leaders within these organizations are familiar with the members of the freight community and may be in a position to suggest candidates. Membership in freight committees is encouraged to be on an appointment basis, in coordination with the local elected bodies (e.g., via MPO staff nomination to appropriate elected officials such as mayor[s], county commissioners, etc.). Appointments can legitimize the acceptance of this committee as a formal component of the transportation program.

Basic versus Advanced Approach

The major distinguishing characteristics between preparing a basic versus an advanced outreach and partnership program relates to the scope and continuity of efforts. Basic outreach and partnering simply relates to engaging a smaller community of freight stakeholders and engaging these stakeholders less frequently. Conversely, advanced outreach involves engaging more freight stakeholders on an ongoing basis.

Basic outreach and partnering is typical of small MPOs, MPOs in regions dominated by single, mature industries, or MPOs with fewer transportation modes and options. Such regions typically have smaller or less complex freight networks, with reduced needs for ongoing interaction with freight stakeholders. However, this does not mean that MPOs in such areas can ignore freight stakeholders or the need to maintain regular interaction. Such communication can be key in recognizing changing economic and logistical conditions. Such outreach efforts also encourage freight industry support and cooperation with other planning and project prioritization efforts.

Larger MPOs or MPOs in areas with more complex and dynamic conditions tend to expend more energy engaging freight partners on an ongoing basis, emulating the approaches used and proven valuable by large MPOs. A typical advanced approach is to create a committee of freight stakeholders that meets regularly (usually monthly, quarterly or semiannually), consisting of representatives from major shippers, distributors, and modal carriers in the region. This committee reviews area freight needs and identifies current or potential projects that could address these needs. MPO personnel typically serve as staff to such committees, arranging meetings, coordinating the agenda, and providing information and reports as needed to keep the committee informed of relevant projects.

Key Activities

The development of effective outreach and partnership activities is a critical component in an MPO's transportation planning program. These activities provide system users and impacted communities with the ability to identify their issues and participate in the development of system improvements. Various options exist to engage freight stakeholders. Activities can be designed to address specific issues or projects, or they can be more open ended. For example, a major corridor analysis would focus outreach to those stakeholders operating in the corridor/subregion and would ascertain potential impacts on specific improvement alternatives. A more general approach could include regionwide outreach to stakeholders to support the development of a regional freight profile and the identification of systemwide constraints or bottlenecks.

This section provides basic and advanced approaches for outreach and partnership development activities. The types of activities include surveys, interviews, focus groups, advisory committees, and freight appointments to existing boards and committees. The specifics of the activities should be customized to meet the needs of the specific freight program direction. Outreach and partnership activities support all aspects of policy, planning, and programming and will need to be developed in a way that supports the activities selected by an MPO.

The success of outreach activities with the private sector freight industry is impacted by several factors:

- **Profitability and economic competitiveness.** The most basic motivator for private sector firms is economic; these entities exist to produce profits for investors. While it is also in the long-term interest of firms to be good corporate citizens, economic considerations provide the strongest link between corporate activities with the community and, therefore, serve as the strongest predictor of continued and engaged stakeholder interest.
- **Partnerships with local industry leaders and organizations.** Local traffic organizations and chambers of commerce can often assist by suggesting firms and individuals with appropriate skills and interests to participate in freight planning activities and potentially act as freight champions. Such outreach to the local chambers, traffic clubs, and logistics organizations is a basic element in stakeholder outreach efforts.
- **Private sector impacts.** Because freight-focused firms are logistically sensitive, freight projects will seldom impact all stakeholders equally. As such, they carry the potential for changing the competitive dynamics of firms. This makes the project selection process politically sensitive to claims of favoritism.

Basic Approach

Activity	• Outreach and Partnerships—Basic
Activity Type	• Policy, Planning, and Programming
Level of Effort	• Moderate
Technical Complexity	• Low
Data/Analytical Tool Needs	• Moderate. May require data collection efforts.
Outreach/Partnership Needs	• N/A
Training/Education Needs	<ul style="list-style-type: none"> • Low. Requires staff to apply basic freight knowledge, particularly relating to stakeholder outreach activities; should explore resources available from FHWA. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Supports all activities.

Key activity: Identify and develop freight outreach program.

Step 1. Identify key planned freight program elements. Before an outreach plan can be developed, it is important to understand the basic direction of the program. Initial policy and profile work versus alternatives analyses and program implementation require different levels of outreach and partnership building.

Step 2. Define anticipated outreach and partnership needs. Based on the anticipated program development, staff should define expectations for the outreach plan. What type of input is needed? What will the time commitment be?

Step 3. Identify potential private sector partners. The pool of potential partners will be dependent on the region's freight system. A mix of stakeholders should be identified to address each mode, major industry, economic development, and impacted communities. Completion of a regional profile will aid in this step.

Step 4. Conduct specific outreach on as needed basis. The outreach plan can consist of surveys, interviews, focus groups, and committees. In general, outreach is conducted as part of data collection activities. Activities should be identified to support freight program activities.

Step 5. Solicit participation in ad hoc FAC. It is important to have a body of freight experts to use for key decisions impacting program direction. Although this approach does not call for regular meetings, it does require that there be a FAC available to staff for periodic use.

Step 6. Solicit input on freight program development on an as needed basis. Staff should use the FAC on an as needed basis to address specific freight program activities. This interface should be used prudently to ensure the committee members are not over taxed and remain engaged.

Advanced Approach

Activity	• Outreach and Partnerships—Advanced
Activity Type	• Policy, Planning, and Programming
Level of Effort	• High
Technical Complexity	• Moderate
Data/Analytical Tool Needs	• Moderate. May require data collection efforts.
Outreach/Partnership Needs	• N/A
Training/Education Needs	• Low. Requires staff to apply basic freight knowledge, particularly relating to stakeholder outreach activities; should explore resources available from FHWA. • http://ops.fhwa.dot.gov/freight/FPD/index.asp
Related Activities	• Supports all activities.

Key activity: Develop a formalized freight outreach program that is integrated into ongoing transportation program development.

Step 1. Identify key planned freight program elements. Before an outreach plan can be developed, it is important to understand the basic direction of the program. Initial policy and profile work versus alternatives analyses and program implementation require different levels of outreach and partnership building.

Step 2. Define anticipated outreach and partnership needs. Based on the anticipated program development, staff should define expectations for the outreach plan. What type of input is needed? What will the time commitment be?

Step 3. Identify potential private sector partners. The pool of potential partners will be dependent on the region's freight system. A mix of stakeholders should be identified to address each mode, major industry, economic development, and impacted communities.

Step 4. Conduct specific outreach on as needed basis. The outreach plan can consist of surveys, interviews, focus groups, and committees. In general, outreach is conducted as part of data collection activities. Activities should be identified to support freight program activities.

Step 5. Solicit participation or appointment to a FAC. It is important to have a body of freight experts available to bounce ideas off of as a freight program is developed. A formalized FAC provides staff with access to this type of expertise. In addition, if the committee is designated formally by the MPO, it will have the same level of input and political clout as other committees. Specific accomplishments or progress will be necessary to keep the committee engaged in the process.

Step 6. Hold initial kickoff meeting and define roles and responsibilities. MPO staff should hold an organizational meeting for the appointed or designated FAC members. This meeting should define roles and responsibilities, which will impact frequency of meetings as well as specific activities undertaken to support the MPO freight program.

Step 7. Meet regularly to provide input to freight program development. The committee should meet regularly to address its defined roles and responsibilities. Regularly does not mean frequently. The term “regularly” is used to imply that the committee commits to meet on an ongoing

basis to ensure the freight program advances. For some MPOs, this will translate into annual meetings to review needs and projects. Other MPOs may require monthly or quarterly meetings to support a more advanced and intensive freight program. The committee and MPO staff should be flexible from year to year to ensure that the freight program focus is current and relevant.

Common Issues and Potential Solutions

An effective outreach program faces many obstacles. The following table identifies some of the more common issues that hinder private sector freight stakeholder participation and strategies that can be used to address these concerns:

Common Issue	Potential Solution
Differing planning horizons. Private sector freight stakeholders often consider the public transportation planning process to be too long and cumbersome to warrant their attention, choosing instead to focus on short-range operational and profit goals.	Create quick-fix projects. Creating early success stories is a critical success factor to securing freight stakeholder interest. This generally involves identifying and delivering early, quick-fix projects that establish program success. Projects meeting quick-fix criteria often consist of maintenance-type projects (e.g., additional turn lanes, widening lane shoulders, traffic signal timing, etc.) that can be completed within a short time and without major funding requirements. Because MPOs do not have direct control over these resources, they must solicit them from the appropriate agency (state, county, or city) to support this strategy.
Personnel turnover in the private sector. Interest by stakeholder firms is often dependent on individual interest. Industry turnover can have a negative impact on ongoing participation.	Focus stakeholder outreach efforts on firms and individuals with long-term and strategic commitments to the community. Target firms include those with company headquarters and major operations located within the region. Such firms are likely to ensure that replacement personnel are provided when necessary. Target individuals include leaders within the freight industry that have demonstrated interest in community activities. Development of a regional freight profile can help identify these individuals. Such individuals are likely to continue participation in the process even if they leave current firms.
Time constraints. Time constraints of the private sector freight industry hinder the ability to fully commit to the public transportation planning process.	Hold focused meetings and outreach events. MPOs must make sure that freight stakeholder meetings are held in a time efficient manner and produce tangible results. The success of initial stakeholder meetings is a critical success factor in encouraging ongoing participation. Conducting efficient, effective freight meetings requires significant amounts of pre-planning and preparation, usually with MPO personnel assuming an organizational role.
Proprietary issues. Private sector freight stakeholders often worry about protecting company/client trade secrets and information that could affect a firm's competitiveness, as such they limit the amounts and kinds of information shared.	Understand and respect competitive concerns. All MPO freight data collection efforts must acknowledge and address privacy and confidentiality concerns in all stakeholder communications. MPOs should be sure of the kind of data they require before making requests of the private sector. In many cases, direct observations of traffic activities (e.g., truck counts, etc.) are just as useful as specific freight shipment data.

Putting It All Together

The objective of this Guidebook is to provide small- and medium-sized MPOs with a set of guidelines to support the development and implementation of a freight planning program. It is meant to expand on the freight planning emphasis of ISTEA, TEA-21, and SAFETEA-LU to provide specific actions that MPOs should take to initiate a freight transportation planning program. Although most MPOs will not undertake all the sequential steps required to develop a program of this type all at once, it is imperative that staff understand how the components it undertakes fit into the overall picture of a comprehensive freight program.

Table 4.1 provides a list of steps that constitute a comprehensive metropolitan freight planning program. Staff should refer to this list as it develops initial activities; then, with each subsequent update, the process should evolve toward a complete program.

The Florida DOT, District 4 has spent the last several years developing a regional freight transportation program. As part of this program, it has supported freight initiatives by its MPOs. As part of the freight program development, the District developed a comprehensive freight program procedure. The following text box and Figure 4.1 summarize this procedure. Although the District operates differently than MPOs, the procedure was developed to support a regional program. Today, most MPOs recognize the importance of work within a regional framework. Further, MPOs throughout Florida have been challenged to develop regional transportation programs through partnerships with other MPOs and regional partners to qualify for a new funding program administered by the state. The following procedure addresses the basics of freight transportation that apply to MPOs and regional DOT offices.

Table 4.1. Steps to develop a freight program.

Step	Description
Step 1 – Assign a Freight “Lead” or POC.	<ul style="list-style-type: none">• A freight technical lead should be designated within the MPO. This POC will be the liaison between the MPO and the freight industry, between the MPO’s various transportation initiatives, and between the MPO and other agencies and stakeholders. The time commitment of this position will be determined by the magnitude of the MPO’s freight program. However, time commitments should be made in the MPO’s UPWP on an annual basis.
Step 2 – Establish Goals and Objectives for Freight Program.	<ul style="list-style-type: none">• Freight goals and objectives should be developed as one of the first steps of a freight program. The goals and objectives will be refined as the freight program is developed. However, the individual freight planning activities described in this Guidebook will be directed by the preliminary goals and objectives.
Step 3 – Develop a Regional Freight Profile.	<ul style="list-style-type: none">• It is important to quantify the physical and operational characteristics of a region’s freight system and supporting market forces. This should include the collection of qualitative and quantitative data from industry representatives through surveys, interviews, or both.
Step 4 – Engage the Private Sector.	<ul style="list-style-type: none">• The private sector freight industry should be given the opportunity to contribute to the freight program development throughout the process. This should include informal outreach to stakeholders through interviews, surveys, workshops, and/or formalized inclusion through the formation of a freight steering or advisory committee.
Step 5 – Define Freight Issues/Needs/Deficiencies.	<ul style="list-style-type: none">• The region’s freight issues, needs, and deficiencies should be identified based on a review of the physical and operational data provided in Step 3. In addition, data should be collected from the region’s freight stakeholders (planners, carriers, shippers, manufacturers, and others) through partnership building activities conducted in Step 4.

Step 6 – Key Decision Point.	<ul style="list-style-type: none"> Steps 1 through 5 provide a preliminary program direction, a description of the freight system, and an identification of the region’s freight needs and deficiencies. At this point in the process, the MPO should review the results of the previous steps to determine appropriate next steps; specifically, what type of freight program is appropriate for the region? Some MPOs may find that all their freight issues are roadway-related and already are being addressed within their existing transportation program. Those MPOs should conduct Steps 1 through 6 on an annual basis as part of their general transportation planning activities. Other MPOs may have larger or more complicated issues that require a formal continuation of program development, which can be accomplished by undertaking Steps 7 through 14.
Step 7 – Refine Program Goals and Objectives.	<ul style="list-style-type: none"> At this critical step in the process, the preliminary goals and objectives established in Step 2 should be reviewed to incorporate the specific flavor of the program based on the Step 6 evaluation.
Step 8 – Develop Ongoing Freight Data Collection/Tool Development and Improvement Program.	<ul style="list-style-type: none"> The freight planning program must have an ongoing, reliable stream of data and information to drive the analyses that allow for project identification and evaluation. This is important even for those MPOs that may not be developing a full, comprehensive freight program using Steps 7 through 14. A data collection program can be as simple as collecting truck counts regularly, collecting information from freight stakeholders on key freight issues or bottlenecks, or updating port throughput numbers on an annual basis. Alternatively, it could be much more complicated, using truck trip diaries, commodity flow data purchases, or other techniques.
Step 9 – Establish Performance Measures.	<ul style="list-style-type: none"> Performance measures are necessary for the ongoing evaluation of how well the freight planning program is addressing its goals and objectives. Because data collection activities are a key component of performance measure development, this step should follow Step 8. In fact, based on the identified performance measures, staff should review the results of Step 8 to ensure the data collection program will provide all necessary data before advancing to Step 10.
Step 10 – Identify Freight Projects and Strategies of Regional Significance.	<ul style="list-style-type: none"> MPO staff should work with regional freight stakeholders to identify potential freight projects for inclusion in the MPO transportation program. These could be infrastructure projects or operational strategies, such as truck network designations, to address the needs identified in Step 5 and the goals and objectives refined in Step 7.

(continued on next page)

Table 4.1. (Continued).

Step	Description
Step 11 – Develop Criteria with Which to Evaluate Freight Projects and Strategies.	<ul style="list-style-type: none">• The projects identified in Step 10 need to be ranked and prioritized before they can be integrated into the traditional transportation documents, including LRTPs, TIPs, and UPWPs. Freight-specific criteria should be developed to evaluate and rank these projects. These criteria should deal specifically with freight issues, however, ultimately they should be incorporated into existing MPO project evaluation and prioritization processes.
Step 12 – Integrate Freight Projects and Needs into Existing Planning Programs.	<ul style="list-style-type: none">• The ultimate goal of an integrated freight program is to successfully integrate freight needs and projects into the project development and implementation processes within an MPO. This is accomplished through the development of freight or intermodal elements of an LRTP, the programming of freight projects in a TIP, or a specific line item for a freight staff person in the UPWP.
Step 13 – Fund and Deploy Projects.	<ul style="list-style-type: none">• Project delivery helps to legitimize a freight planning program and energize the private sector. Deploying successful freight improvement projects also can maintain momentum for an MPO freight planning program.
Step 14 – Develop Process for Regular Update of the Freight Program.	<ul style="list-style-type: none">• Any freight planning program must be updated on a regular basis. Once integrated into the existing transportation program within an MPO, the freight planning program should be reevaluated to ensure that it is meeting the freight needs of the MPO. Steps 1 through 5 should be completed and coordinated with every LRTP update to ensure the project development, selection, and ranking activities take place in a timely manner for incorporation into the LRTP. Regular completion of these initial steps will help freight planning programs evolve and continue to meet the needs of small- and medium-sized metropolitan areas.

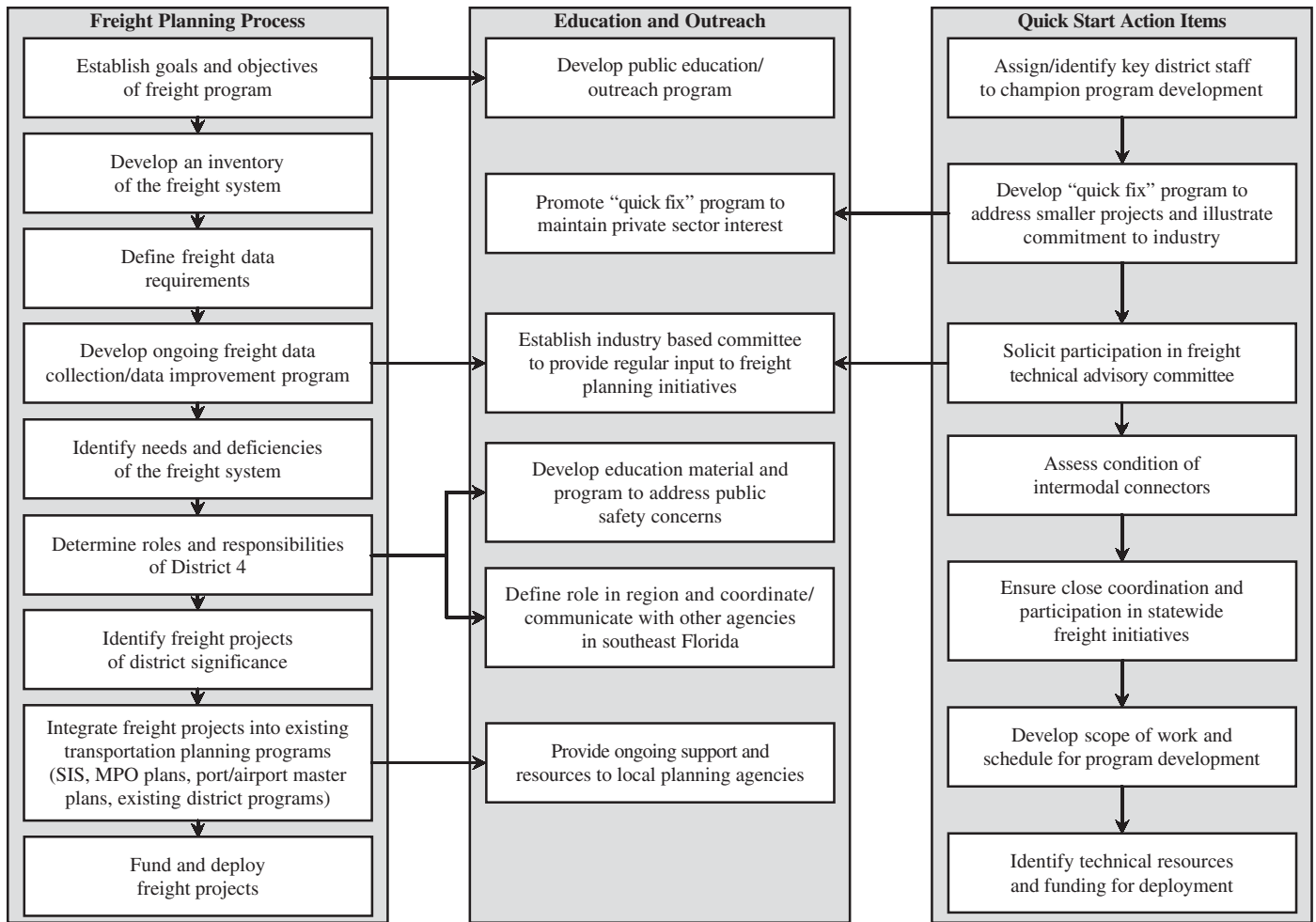


Figure 4.1. Example of freight planning program development. (Florida Department of Transportation, District 4)

Florida DOT, District 4—Development of Regional Freight Program Procedure

The Florida DOT, District 4, has undertaken several freight initiatives over the last several years to define the regional freight system, document key needs, and begin to identify and develop potential improvements. These activities consisted of the following: outreach to regional freight stakeholders through freight planning workshops; development of a GIS-based truck volume database and mapping program; active participation in statewide freight initiatives; and ongoing support and guidance to local regional partner initiatives (MPO freight studies, freight corridor analyses, etc.). With the completion of these activities, the District freight champion led the development of a regional freight program procedure to integrate work to date and ensure the future work would drive the development of a comprehensive program. Figure 4.1 illustrates the resulting freight program procedure. This program focuses on three categories of activities.

1. **Freight Planning Process.** This theme defines the major steps required to establish a freight program. It starts with definitions of goals and objectives and ends with funded deployed projects.
2. **Education and Outreach.** This theme addresses the recommended activities to educate the general public and specific freight stakeholders and provide opportunities for their participation in development of the freight program.
3. **Quick Start Action Items.** This theme defines the immediate action items suggested to get the process started. It defines the key first steps for the freight planning process, such as identifying a staff champion and developing the program's scope. It also highlights a few key areas that should be jump started without waiting for the full program development, such as assessing current intermodal connectors. These quick start action items are also an effective way to engage the private sector freight industry to encourage their initial and long-range participation in the program.

Identifying Freight Resources

Module 5 contains the following sections:

- Resources Available through FHWA's Freight Professional Development Program (shown in Figure 5.1)
- Freight-Related Databases in the United States, Canada, and Mexico (listed in Tables 5.1 through 5.5)
- Current Federal Funding and Financing Programs for Freight Improvements (listed in Tables 5.6 and 5.7)
- Case Studies
- Freight Glossary References

Resources Available through FHWA's Freight Professional Development Program

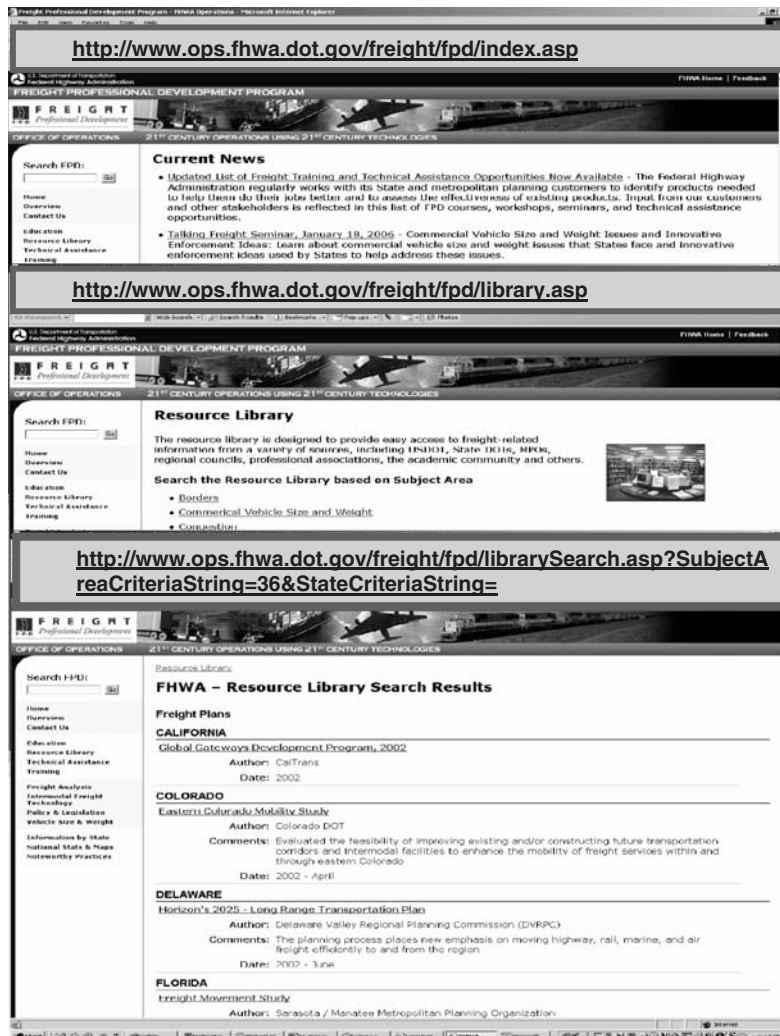


Figure 5.1. FHWA's FPD program references.

Freight-Related Databases in the United States, Canada, and Mexico

Freight-Related Databases in the United States, Canada, and Mexico

Table 5.1. Economic databases.

Source	Modes	Description/Attributes	Update Cycle	Geographic Coverage	Agency	Availability
Regional Economic Information System (REIS)	All	Base economic information for U.S. regions outside Florida, including population, employment by Standard Industrial Classification (SIC) code, housing construction, tourism, and sales by business group data	Every 10 years, years ending in 0	U.S. Totals, States, Basic Economic Analysis (BEA) regions, metropolitan statistical areas (MSAs), and Counties	U.S. Department of Commerce, BEA	REIS CD-ROM version, available for purchase
Statistical Abstract of the United States	All	National-level overviews of Freight Statistics, including operation costs, fuel consumption, employment, and revenue data	Annual	U.S. Totals, States, Cities, Metropolitan Areas	Census Bureau, Data Users Service Division	Print version, available for purchase

Table 5.2. Socioeconomic databases.

Source	Modes	Description/ Attributes	Cycle Update	Geographic Coverage	Agency	Availability
Census Transportation Planning Package (CTTP)	All	Base year populations and households for analysis zones outside Florida	Every 10 years, years ending in 0	U.S. Totals, State, County, Places with more than 2,500 persons	U.S. Department of Commerce, Census Bureau	CD-ROM version, contact state/local agencies for free copy
County Business Patterns	All	SIC Employment Data	Annual	U.S. Totals, State, and County	U.S. Census Bureau	www.census.gov/epcd/cbp/ view/cbpview.html
National Income and Product Account (NIPA)	All	Consumption Information for U.S.	Annual	U.S. Totals	U.S. Department of Commerce, BEA	Diskette version, free of charge
BEA Regional Projections to 2045	All	National projections of employment by industry type	Annual	U.S. Totals and State	U.S. Department of Commerce, BEA	Diskette version, available for purchase
Annual Survey of Manufactures	All	Additional employment data and value of goods shipped by type of goods	Annual	U.S. Totals	U.S. Department of Commerce, Census Bureau, Manufacturing and Construction	http://www.census.gov/mc d/asmhome.html
Survey of Employment, Payroll and Hours	All	Employment data for Eastern and Western Canadian regions	Annual	Canada, the province and territories	Statistics Canada, Labor Division	Print version, available free of charge
Trends in Occupation and Industry	All	Base occupation and industry data for Canadian regions	No specific pattern	Canada	Statistics Canada, Census Operations Division, Census of Population	Print version, available for purchase
Covered Employment and Wages (ES-202) Programs	All	General employment data (number of employees, revenues, and wages by employment type)	Annual	U.S. Totals, State, and County	Department of Labor, Bureau of Labor Statistics	Print and CD-ROM versions, available for free from Florida DOT
Current Employment Statistics	All	General employment data (number of employees, revenues, and wages by employment type)	Annual	U.S. Totals, fewer details for states	U.S. Department of Labor, Bureau of Labor Statistics	http://stats.bls.gov/data/ho me.htm
Census of Manufacturers	All	Employment and manufacturing industries statistics as well as quantity and value of material consumed and products shipped	Every five years, years ending in 2 and 7	U.S. Totals, State, and Local Geography	U.S. Department of Commerce, Census Bureau	http://www.census.gov/eco n/www/mancen.html
Info USA	All	Employment by industry using refined SIC codes as well as North American Industry Classification System (NAICS) codes	Weekly	U.S. Totals, State, Districts, and Counties	Info USA	Database version, available for purchase
Consumer Expenditure Survey	All	American Households expenditures, income, and family characteristics	Weekly, and per quarter	U.S. Totals, Four Census regions, 26 selected Metropolitan Areas	U.S. Department of Labor, Bureau of Labor Statistics	Print, Diskette, and Tape versions, available for purchase

Table 5.3. Modal networks.

Source	Modes	Description/ Attributes	Cycle Update	Geographic Coverage	Agency	Availability
North American Transportation Atlas (NORTAD)	All	Geospatial information for transportation modal networks, intermodal terminals, and related attribute information	Not specified	U.S. Totals, Canada, and Mexico	U.S. Department of Transportation, Bureau of Transportation Statistics	www.bts.gov/publications/north_american_transportation_atlas_data/
National Transportation Atlas Databases (NTAD)	All	Most complete database source for highway network information outside Florida and for rail, water, and air networks for the zones inside and outside Florida	Not specified	50 U.S. States, District of Columbia, and Puerto Rico	U.S. Department of Transportation, Bureau of Transportation Statistics	www.bts.gov/programs/geographic_information_services/
National Highway Planning Network Version 2	All	Highway link information in the U.S. (Real-time information on vehicle movement and highway conditions)	Real-time	Major U.S. Highways	U.S. Department of Transportation, Federal Highway Administration	www.fhwa.dot.gov/planning/nhpn located under subdirectory PUB/FHWA/GIS
Strategic Highway Corridor Network (STRAHNET) and Connectors	All	Highway link information outside Florida (real-time information on vehicle movement and highway conditions)	Not specified	Major Highway Systems in 50 U.S. States and District of Columbia	U.S. Department of Defense, Department of Army, Military Traffic Management	www.fhwa.dot.gov/hep10/NHS/review/strahnetproc.html
Federal Railroad Administration (FRA) National Rail Planning Network	Rail	Digital representation of major continental U.S. railway systems, including Canada and Mexico	Not specified	50 U.S. States, Canada, and Mexico	U.S. Department of Transportation, Federal Railroad Administration	www.bts.gov/publications/north_american_transportation_atlas_data/

Table 5.4. Modal operations and volumes.

Source	Modes	Description/ Attributes	Cycle Update	Geographic Coverage	Agency	Availability
Highway Performance Monitoring System	All	National public road mileage on both a statewide and national basis	Annual	National, statewide, and urbanized areas	U.S. Department of Transportation, Federal Highway Administration	GIS version, available for purchase
Highway User and Usage Database	All	Data on motor fuel consumption, registrations, driver licenses, highway finance, and road characteristics	Annual	National and statewide	U.S. Department of Transportation, Federal Highway Administration	http://www.fhwa.dot.gov/policy/ohpi/
Truck Weight Study Data	All	Database contains information on weight-in-motion and vehicle classification information collected at truck weigh sites	Not specified	U.S. Totals	U.S. Department of Transportation, Federal Highway Administration	Free of charge if diskette is provided
Terminal Area Forecast	Airport	Air cargo volumes by commodity type	Not specified	Select airports in the U.S., including those with FAA control towers and those receiving commercial service	U.S. Department of Transportation, Federal Aviation Administration	Printed format
Federal Aviation Administration (FAA) Aviation Forecasts Fiscal Years 2000-2011	Airport	Air cargo historical and forecast volumes by commodity type	Not specified	Select airports in the U.S., including those with FAA control towers and those receiving commercial service	U.S. Department of Transportation, Federal Aviation Administration	http://www.faa.gov/data_statistics/aviation/aerospace_forecasts/2000-2011/
1987 Benchmark Input-Output Accounts of the United States	All	Distribution of transportation service output to using industries and final purchasers, defined by mode	Not Applicable	U.S. Totals	BEA, Industry Economics Division	Diskette, available for purchase
Status of the Nation's Surface Transportation System: Condition and Performance	All	Highway, bridge, and transit operation and financial performance measures	Biennial	National	Department of Transportation, Federal Highway Administration	Print version, available for purchase
Profiles of U.S. Railroads	Rail	Annual survey of freight railroads (name, owner, operator, location, geographic boundaries, number of employees, wages, and revenues)	Annual	500 U.S. freight railroads	Association of American Railroads	Print copy, available for purchase

Motor Carrier Financial and Operating Information Program	All	Annual and quarterly survey of motor carriers (name, owner, operator, location, geographic boundaries, number of employees, wages, and revenues)	Quarterly and annually	National	Federal Highway Administration, Office of Motor Carriers	www.bts.gov/mcs/prod.html
Intermodal Equipment Inventory	All	Intermodal equipment of all U.S.– flag intermodal marine carriers and major container leasing companies operating in the U.S.	Quarterly	National	U.S. Department of Transportation, Maritime Administration	Print version, available for purchase
Annual Bulletin of Transport Statistics for Europe	All	Rail, road, inland, waterways, and oil-pipeline transport database	Annual	U.S., Europe, and Israel	United Nations, Economic Commission for Europe	Print version, available for purchase
North America Airport Traffic Report. Airport Council International – North America Traffic Report	Aviation	Airport activity statistics in terms of passenger and cargo operations	Not applicable	130 North American airports	Airports Council International, North America	Print version, available for purchase
Railroad 10-Year Trends	Rail	U.S. freight industry performance, traffic, revenue, financial statistics, employment, plant, and equipment	Annual	U.S. Totals	Association of American Railroads	Print version, available for purchase
Transportation Files (TRANS Files)	Rail	Railroad annual report, including data on freight volumes, number of employees, and wages	Annual	U.S. Class I Railroads	Surface Transportation Board	Print version, available for purchase
Uniform Railroad Cost System (URCS) Phase III Movement Costing Program	Rail	Railroad Movement Cost estimates	Annual	U.S. Class I Railroads, two summary regions (east and west)	Surface Transportation Board	Print version, available for purchase
Air Transport	Aviation	Passenger and freight airline statistics	Annual	National	Air Transport Association (ATA)	http://66.153.70.186/ATA_eBiz/Default.aspx?tabid=95&action=SUBProductDetails&args=168
Railroads and States	Rail	Amtrak and freight railroad statistics by state	Annual	48 Continental U.S. States and Alaska	Association of American Railroads	Current publication version, www.aar.org

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Table 5.4. (Continued).

Source	Modes	Description/ Attributes	Cycle Update	Geographic Coverage	Agency	Availability
Airport Activity Statistics	Aviation	Volume of revenue passengers, freight express, and mail traffic	Annual	U.S. Totals, State, and City	U.S. Department of Transportation, Bureau of Transportation Statistics	Print version, available for purchase
Railroad Facts	Rail	Summary of historic data on Class I railroads defined by the Surface Transportation Board	Annual	U.S. Totals, summary by east and west	Association of American Railroads	Print version, available for purchase
National Highway and Airway Carriers and Routes	All	General and detailed freight shipping information (routes and warehousing information)	Not specified	50 States and Canada	Transportation Technical Services, Inc.	Print version, available for purchase
Port Facilities Inventory	Seaport	Detailed information on more than 4,000 major ocean and river port facilities (name, owner, operator, location, geographic boundaries, activity levels, wages, revenues, and number of employees)	No specific update cycle	Major U.S. ocean and river port facilities	U.S. Department of Transportation, Maritime Administration	Print version, available for purchase
Port Series	Seaport	Information on U.S. port facilities (name, owner, operator, location, geographic boundaries, activity levels, wages, revenues, and number of employees)	Eight to 10-year cycle	U.S. Coastal, inland, and Great Lakes port facilities	U.S. Department of Defense, U.S. Army Corps of Engineers	Print version, available for purchase
Transportation In America	All	Historical statistical analysis of transportation activities, by modes in the United States	Not Applicable	National	Eno Transportation Foundation	Print version, available for purchase
Transportation Statistics Annual Report	All	Summary of state transportation statistics with focus on economic, safety, and environmental consequences of systems	Annual	U.S. Totals	U.S. Department of Transportation, Bureau of Transportation Statistics	www.bts.gov/programs/transportation-statistics/tsar/tsar.html
Waterborne Transportation Lines of the United States	Seaports	Information on all domestic vessel operations (freight volumes and revenues)	Annual	U.S. Totals	U.S. Department of Defense, U.S. Army Corps of Engineers	Print version, available for purchase
Transportation Technical Services (TTS) Blue Book of Trucking Companies	All	Motor Carriers data, including income, operating expenses, labor, units, output, assets, and liabilities. Private fleet not included	Annual	U.S. Totals, Canada	Transportation Technical Services	Disk version, available for purchase

America's private Carriers	All	Charts and analysis information on private carrier segment of trucking industry	Annual	U.S. Totals	Transportation Technical Services	Disk version, available for purchase
Canadian Motor Carrier Directory	All	Survey of trucking firms in Canada (name, owner, operator, location, geographic boundaries, activity levels, wages, revenues, and number of employees)	Not specified	Canada	Transportation Technical Services	Disk version, available for purchase
Mexican Motor Carrier Directory	All	Survey of trucking firms in Mexico (name, owner, operator, location, geographic boundaries, activity levels, wages, revenues, and number of employees)	Not specified	Mexico	Transportation Technical Services	Disk version, available for purchase
Standard Trucking and Transportation Statistics (STATS)	All	Comprehensive overview of trucking industry (name, owner, operator, location, geographic boundaries, activity levels, wages, revenues, and number of employees)	Annual	U.S. Totals	American Trucking Associations	Yearly subscription
The Private Fleet Directory	All	Comprehensive overview of private firms with 10 or more trucks or tractors (name, owner, operator, location, geographic boundaries, activity levels, wages, revenues, and number of employees)	Annual	U.S. Totals	Transportation Technical Services	Disk version, available for purchase
TranStats	All	Data on truck movement, truck shipments that move across the Woodrow Wilson Bridge, federal gas tax, and findings from Transportation Satellite Accounts (TSA)	Varies	U.S. Totals	U.S. Department of Transportation	www.bts.gov/programs/transstu/analysis.htm
Truck Inventory and Use Surveys (TIUS)	All	Physical and operational characteristics on the Nation's truck population	Varies	U.S. Totals, 50 States, and District of Columbia	U.S. Department of Commerce, Census Bureau	www.bts.gov/ntda/tius/prod.html
Trucking Activity Report (TRAC)	All	Benchmarking statistics for both truckload and less-than-truckload carriers	Monthly	U.S. Totals	American Trucking Associations	Yearly subscription
Analysis of Class I Railroad	Rail	Financial and operating statistics for each Class I railroad	Not specified	U.S. Totals, summary by east and west	Association of American Railroads	Print version, available for purchase

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Table 5.4. (Continued).

Source	Modes	Description/ Attributes	Cycle Update	Geographic Coverage	Agency	Availability
Highway Statistics	All	Statistical tabulations relating to highway use, highway finance, and highway infrastructure	Annual	U.S. by 50 states	U.S. Department of Transportation, Federal Highway Administration	www.bts.gov/ntda/fhwa/pr od.html
Freight Transport Trends and Forecasts	Seaport, Rail, Trucking	Historical trends and detailed forecasts for marine, rail, and truck freight traffic, by commodity and sector	Annual	Canada	Transport Canada	Print version
Long-Term Pavement Performance (LTPP) Central Traffic Database	All	Historical and monitored traffic summary statistics for all General Pavement Study and Specific Pavement Study	Annual	U.S. Totals	U.S. Department of Transportation, Federal Highway Administration	Disk version, free of charge
Annual Vehicle-Miles of Travel (VMT) and Related Data (VM-1)	All	VMT estimates of current year and revised figures for previous years	Annual	U.S. Totals	U.S. Department of Transportation, Federal Highway Administration	Disk version, free of charge
National Transportation Statistics (NTS)	All	National transportation data and transportation-related energy statistics for major transportation modes	Varies	U.S. Totals	U.S. Department of Transportation, Bureau of Transportation Statistics	http://www.bts.gov/publications/national_transportation_statistics/

Table 5.5. Freight shipments.

Source	Modes	Description/ Attributes	Cycle Update	Geographic Coverage	Agency	Availability
TRANSEARCH	All	Comprehensive market research data service for intercity traffic flows	Every five years, years ending in 3 and 8	Counties	Reebie Associates	CD-ROM, available for purchase
Commodity Flow Survey (CFS)	All	Data on flow of goods and materials by mode of transport	Not specified	U.S. Totals and 89 National Transportation Analysis Region	U.S. Department of Transportation, Bureau of Transportation Statistics	CD-ROM, available for purchase
Carload Waybill Sample	Rail	Rail shipment data such as origin and destination points, type of commodity, number of cars, tons, revenue, participating railroads, and interchange locations	Annual	U.S. Totals, BEA-to-BEA levels	Surface Transportation Board	CD-ROM, available for purchase
Rail Waybill Database	Rail	Public-use aggregate nonconfidential rail shipment data (freight volume and revenue data)	Not specified	U.S. Class I Railroads	U.S. Department of Transportation, Bureau of Transportation Statistics	CD-ROM, available for purchase
Latin America Trade and Transportation Study	All	Analysis of trade between Latin America and the United States. Emphasis on transportation impacts on southeastern states	Varies	Latin American and Southeastern U.S. by state	Southeastern Association of State Highway and Transportation Officials (SASHTO)	CD-ROM
Domestic Waterborne Commerce of the United States	Seaport	Domestic waterborne commerce in short tons by commodity, vessel, operator, shipping and receiving dock, type of service, and trade segment	Annual	U.S. by ports	U.S. Department of Transportation, Maritime Administration	CD-ROM
U.S. Waterborne Exports and Outbound In Transit Shipments	Seaport	Shipping weight and value by type of vessel service	Annual	Counties	U.S. Department of Commerce, Census Bureau	CD-ROM
The State Freight Transportation Profiles	All	Summaries of National Transportation Atlas Databases, CFS, United States Waterway Data, and Railroad Accident/Incident Reporting System (RAIRS)	Not Specified	50 States	U.S. Department of Transportation, Bureau of Transportation Statistics	CD-ROM, available for purchase

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Table 5.5. (Continued).

Source	Modes	Description/ Attributes	Cycle Update	Geographic Coverage	Agency	Availability
U.S. Exports of Merchandise	All	Year-to-date exports commodity information by district	Annual	U.S. Customs districts of exportations	U.S. Department of Commerce, Census Bureau	CD-ROM, available for purchase
U.S. Imports of Merchandise	All	Detailed general imports and imports for consumption data	Annual	U.S. Customs districts of entry and unloading and country of origin	U.S. Department of Commerce, Census Bureau	CD-ROM, available for purchase
U.S. Exports of Domestic and Foreign Merchandise	All	Exports by all modes to outside the United States	Annual	U.S. Customs districts of exportations, countries of destination	U.S. Department of Commerce, Census Bureau	CD-ROM, available for purchase
U.S. General Imports and Imports for Consumption	All	General imports and imports for consumption data	Annual	U.S. Customs districts of entry and unloading and country of origin	U.S. Department of Commerce, Census Bureau	CD-ROM, available for purchase
Trucking in Canada	All	Comprehensive overview of the Canadian trucking industry, both for-hire and owner-operators	Annual	Canada, provinces, and territories	Statistics Department	Print version, available for purchase
Weekly Railroad Traffic	Rail	Information on carloads by commodity and railroads plus intermodal traffic by railroad	Weekly	U.S. rail carloads	Association of American Railroads	Print version, available for purchase
Monthly Truck Tonnage Report	All	Information on tonnage moved by for-hire motor carriers	Yearly	U.S. Totals	American Trucking Associations	Print version, available for purchase
Transportation Annual Survey	All – except Aviation	Data on total operating revenue, and total operating expenses that include annual payroll and employee benefits, commodities carried, end-of-year inventory of revenue generating equipment, and type of carrier	Yearly	U.S. Totals	U.S. Department of Commerce, Census Bureau	CD-ROM, available for purchase
Shifts in Petroleum Transportation	All– except Aviation	Movement, in ton-miles, of crude oil and petroleum products	Annual	50 States, District of Columbia, and Canada	Association of Oil Pipe Lines	Print version, free of charge
Transshipments Via Canada	All	Dollar value and estimated waterborne tonnage for United States exports and imports transshipped through Canada	Annual	U.S. Totals, Canada	Association of American Railroads	CD-ROM, available for purchase

Transborder Surface Freight Data	All-except Aviation	Annual tonnage and value data by commodity type and by surface mode of transportation	Monthly	U.S., Canada, and Mexico totals	U.S. Department of Commerce, Census Bureau, Foreign Trade Division	www.bts.gov/ntda/tbscd
Origin and Destination of Waterborne Commerce of the United States, Public Domain	All	Aggregate information on waterborne commodity movements between 26 geographical regions in the United States	Yearly	U.S. Totals, U.S. Territories	U.S. Department of Defense, U.S. Army Corps of Engineers	Data file version, available for purchase
Rail in Canada	Rail	Overview of size and structure of Canadian railway industry	Yearly	Canada	Statistics Canada, Transportation Division, Multimodal Transport Section	Print version, available for purchase
Coal Distribution Data	All	Information on coal distribution by origin, destination, consumer category, and method of transportation	Quarterly	Worldwide	U.S. Department of Energy, Energy Information Administration	Diskette format
Port Import Export Reporting Service (PIERS)	Seaports	Comprehensive statistics on global cargo movements transiting seaports in the United States, Mexico, and South America to companies around the globe	Monthly	Global, including U.S. Seaports	Journal of Commerce Group, Inc.	Commercial database available on-line
U.S. General Imports and Imports for Consumption	All	Net quantity and value of imports for consumption and general imports	Annual	U.S. Customs districts of entry and unloading and country of origin	U.S. Department of Commerce, Census Bureau	CD-ROM, available for purchase
Weekly Railroad Traffic	Rail	Carloads by commodity and railroad plus intermodal traffic by railroad	Weekly	U.S. rail carloads	Association of American Railroads	Print version, available for purchase
Current Industrial Reports	All	Current statistics on commodity production and shipments for approximately 4,500 products	Annual	U.S. Totals	U.S. Department of Commerce, Census Bureau	CD-ROM
U.S. Merchandise Trade	All	Tables on merchandise exports, general imports, and imports for consumption	Annual	Custom districts, world area by countries of origin-destination	U.S. Department of Commerce, Census Bureau	Print version, available for purchase
Waterborne Tonnage by State	Seaports	Provides one page listings of the waterborne tonnage by states for a given calendar year	Annual	U.S. Totals, U.S. Territories, 50 States, and District of Columbia	U.S. Department of Defense, U.S. Army Corps of Engineers (USACE)	Print version

*Current Federal Funding
and Financing Programs
for Freight Improvements*

Table 5.6. Current federal funding and financing programs for freight improvements.

Current Federal Programs	Current Eligibility	Impediments
Section 130 Rail-Highway Grade Crossing Program	Rail-highway grade crossings; improvements normally involve public and private funding	Safety-oriented, not for capacity improvements
National Highway System (NHS)	Funds projects on designated highway intermodal connectors to intermodal facilities	Connectors are normally lower priority on NHS system and there is no eligibility for rail improvements
Surface Transportation Program (STP)	Funds projects on any federal-aid highway, bridge projects on any public road, transit capital projects, and other state or local projects	Cannot fund freight rail other than highway grade crossings
Interstate Maintenance (IM)	Provides funding for resurfacing, restoring, rehabilitating and reconstructing most routes on the Interstate Highway System	Cannot fund non-highway improvements
Transportation Enhancements	Supports non-traditional transportation-related improvements	Limited funding available (10 percent set-aside of STP funds)
Rail Relocation Grants	Funds local rail line relocation and improvement projects	Grants only available to states; limited funding available
Truck Parking Facilities	Funds projects that improve long-term parking for commercial vehicles on the NHS	Improvements to facilities not on the NHS are not eligible
CMAQ	Can fund any transport project that improves air quality	Air quality-oriented, not for capacity improvements
TIFIA	Provides loans and credit assistance for major transportation investments of national or regional significance	Current project minimum \$50 million; \$15 million for ITS projects
RRIF	Provides loans and credit assistance to both public and private sponsors of rail and intermodal projects	Limited funding available; percentage targeted to short-line railroads
SIBs	Allows states to establish infrastructure revolving funds that can be capitalized with federal transportation funds	Must be funded by states using federal transportation funds
Private Activity Bonds	Allows the issuance of tax-exempt private activity bonds for highway and freight transfer facilities	Limited bonding authority (capped at \$15 billion)
Grant Anticipation Revenue Vehicle (GARVEE) Bonds	Allows states to issue tax-exempt debt backed by future federal-aid highway revenues	States must commit future highway revenues to back bonds
Coordinated Border Infrastructure Program	Funds projects in border states that improve cross-border flow	Limited eligibility for rail; highway needs dominate

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Table 5.6. (Continued).

Current Federal Programs	Current Eligibility	Impediments
FAA Airport Improvement Program	Funds construction activities at large cargo or commercial airports	Primarily focused on on-airport improvements; limited eligibility for access improvements
USACE Harbor Maintenance	Funds improvements to operations and maintenance of channels used for commercial navigation	Funds subject to appropriations
Department of Commerce Economic Development Administration Grants	Funds projects that allow distressed communities to attract or retain jobs	Freight projects must have ability to create or retain jobs
FTA Rail Modernization	Funds capital improvements on fixed guideway systems	Focused on commuter rail systems (some of which also carry freight, some of which do not)
Special Earmarks	Freight-specific projects occasionally earmarked by Congress	Normally focused on large highway projects

Table 5.7. Examples of state funding programs for freight improvements.

Current Programs	Description
NYSDOT Multimodal Program	Reimbursement funding for authorized rail, port, airport, and state and local highway and bridge projects
NYSDOT Industrial Access Program	Provided funding for road, bridge, and rail access improvements to new or existing development sites
New Hampshire DOT (NHDOT) Special Railroad Fund	Dedicated to the maintenance, repair, and improvement of state-owned railroad lines and is financed through revenue generated by the leasing of railroad lines and other fees from property agreements
NHDOT Revolving Loan Fund	Provides funding to railroad projects on short-line and cog railroads and aims to support the acquisition of railroad property and improvements to lines that will maintain the viability of railroad system. The revolving fund is supported through capital budget appropriations.
Maine DOT Industrial Rail Access Program	Provides funds to projects that encourage economic development and employment growth, preserve essential rail service, enhance intermodal transportation, and preserve rail corridors for future transportation uses. The program is funded through revenue from General Fund bonds and provides up to 50 percent of the estimated project cost.

Case Studies

Small/Medium MPO Case Studies

Brownsville MPO, Brownsville, Texas

Duluth-Superior Metropolitan Interstate Committee, Duluth, Minnesota

Lancaster County Transportation Coordinating Committee, Lancaster, Pennsylvania

Michiana Area Council of Governments, South Bend, Indiana

Association of Central Oklahoma Governments, Oklahoma City

Pima Association of Governments, Tucson, Arizona

Polk Transportation Planning Organization, Bartow, Florida

Roanoke Valley-Alleghany Regional Commission, Roanoke, Virginia

San Joaquin Council of Governments, Stockton, California

Southwest Michigan Commission, Benton Harbor, Michigan

Susquehanna Economic Development Association—Council of Governments,
Lewisburg, Pennsylvania

Syracuse Metropolitan Transportation Council, Syracuse, New York

Toledo Metropolitan Area Council of Governments, Toledo, Ohio

Tri-County Regional Planning Commission, Harrisburg, Pennsylvania

Whatcom Council of Governments, Bellingham, Washington

Small/Medium MPO Case Study

Brownsville MPO Brownsville, Texas

MPO Overview

The Brownsville MPO covers the Brownsville area of Cameron County at the southern tip of Texas, across the Rio Grande from Matamoros, Mexico. A separate planning organization, the Harlingen-San Benito MPO, handles transportation planning for the northern part of the county. Brownsville and the southern Texas region are characterized by high population and economic growth rates that have been further spurred by the North American Free Trade Agreement (inaugurated January 1, 1994). Fast population growth over the past 10 years has been accompanied by strong increases in employment. Brownsville, like the rest of the Rio Grande Valley region, is predominantly Mexican-American. Although the region has seen an expansion in economic opportunity in recent years, it remains one of the poorer parts of the United States.

Consistent with its growth and geographical advantages, Brownsville has witnessed growing freight traffic, in terms of both trucks and rail, since 1994. Brownsville serves as the deep water port for Monterrey—often recognized as Mexico’s leading industrial city and home to major multinational corporations. As such, there is a continual stream of trains and trucks originating from northeastern Mexico (including Monterrey). These trains and trucks cross into the United States at Brownsville as they make their way to the port, about 8 miles northeast of the city center or to other destinations in the U.S. interior. Brownsville also is a popular location for firms that supply Mexico’s *maquiladoras* (assembly facilities generally located in close proximity to the U.S. border) and is a center for warehousing and distribution related to the movement of goods to and from Mexico.

Freight planning is integral to the overall transportation planning process at the Brownsville MPO. Projects ostensibly designed to improve passenger vehicle flows will take freight into account. The MPO has two standing committees: a technical committee and a policy committee. Freight-related interests, including the Brownsville Economic Development Council, the Brownsville/South Padre Island International Airport, the Brownsville Navigation District (Port of Brownsville), and the Brownsville Chamber of Commerce all have seats on the MPO. While no private company is on the MPO board, private interests are represented by these other entities.

Transportation Issues

The Rio Grande Valley and Laredo, about 190 miles to the northwest of Brownsville, represent the center of an hourglass that connects interior Mexico to the south with the U.S. industrial heartland to the north. As such, they are a funnel (and chokepoint) for a huge volume of trucks and railcars that make the massive scale of trade between the two countries possible. The Brownsville MPO cannot plan effectively without considering freight issues because these loom so large in daily life on the border. The issues include

- **Separation of rail from vehicular traffic.** After a 28-year effort, Brownsville just completed the relocation of 10 miles of rail line, allowing rail traffic to bypass its downtown and head directly to the port. However, another project must be completed, the “West Rail Project,” to completely separate rail from Brownsville’s urbanized area.
- **Pavement damage from trucks.** Mexican trucks, sometimes weighing as much as 120,000 lb, transit Cameron County’s roadways, causing pavement damage, particularly at intersections. In response, overweight trucks are now charged a \$30 fee by the Brownsville Navigation District for travel within a specified overweight truck corridor. The revenues are earmarked for

pavement improvement projects (e.g., replacing asphalt pavement at intersections with concrete). This overweight truck corridor was established several years ago by legislation adopted by the Texas State Legislature.

- **Rapid growth and young population limit resources.** Although increased trade with Mexico has resulted in much larger volumes of truck and rail traffic, fast growth and a young population translates to many infrastructure needs in Brownsville and Cameron County. Meeting the basic infrastructure demands associated with this growth can limit the availability of funding for freight transportation projects. With fast growth forecast to continue, concerns are future mobility and how to afford freight-related projects (needed for safety and for the efficient movement of goods).
- **Auto and truck conflict on FM 511.** Farm-to-Market road (FM 511) is used as a connector from the port for trucks going to U.S. 77 (the principal northbound artery out of the region). Also, trucks that cross at the Free Trade Bridge at Los Indios use this route from Mexico to the Port of Brownsville. Large truck volumes create safety issues with automobiles. TxDOT has designed separate FM 511 truck lanes (for future construction if funding can be obtained) to deal with this aspect of freight movement.
- **Limited MPO staff and resources.** The Brownsville MPO has only three staff members (two technical; one administrative). While this is a limitation, it also encourages the MPO to leverage and coordinate expertise and resources with other entities (e.g., city engineering department, Cameron County, TxDOT, and the Port of Brownsville).

Incorporating Freight into Transportation Planning Activities and Developing Freight-Specific Initiatives

Within its jurisdiction, the Brownsville MPO must respond to transportation needs that have local, regional, state, and international impacts. Freight planning is included, explicitly or implicitly, in all the MPO's plans (LRTP, TIP, and metropolitan transportation plan [MTP]). A recently completed project, the Veteran's International Bridge (a.k.a., the Tomates Bridge), responded to needs to improve safety and the movement of trucks from Mexico to the Port of Brownsville. Before the May 1999 opening of the Veteran's International Bridge, trucks had to share the Gateway International Bridge, in the heart of Downtown Brownsville, with about 8,000 to 10,000 pedestrians per day. Also, truck traffic at the B&M International Bridge at the other end of Downtown Brownsville posed many safety problems, as well as noise and inconveniences. The new Veteran's International Bridge at Los Tomates diverts truck traffic east of the city's CBD and provides trucks originating in Mexico with a direct route to the port. Commercial (truck) traffic is no longer permitted at the two downtown bridge locations. Another success is the Brownsville Railroad Relocation Demonstration Project that relocated 10 miles of railway from the downtown area, improving safety and mobility. A combination of factors, approaches, and principles allowed these projects to be planned, programmed, and completed. These factors are now being applied to future projects.

- **Secure land for future transportation uses.** One way to prevent plans from being shelved is to ensure that the land needed for future transportation improvements is secured. Cameron County funded a corridor study to examine how to more directly connect U.S. 281 to the Port of Brownsville. While the connector remains in the planning phase, the county, with assistance from the MPO and the port, has worked on ensuring that plats in the areas that will be affected by the proposed roadway conform to the plan. This county study was once termed the FM 1732 Realignment Project. The connector has since been renamed as the proposed U.S. 281 Connector. On this and other projects, the Brownsville MPO staff exerts meticulous care to make sure that the transportation improvements specified in the LRTP can be built. They "sweat the details" in the review of subdivision plats to make sure they do not conflict with the regional transportation plans (RTPs) they have developed. Right-of-way dedications

are exacted by virtue of the local subdivision ordinances that make reference to the MPO's Thoroughfare Plan.

- In 2001, the Brownsville MPO's Metropolitan Area Boundary (MAB) was enlarged in substantial terms. Accordingly, the small communities of the Town of Rancho Viejo and the City of Los Fresnos were added to the MPO's study area. Due to recent annexations by the City of Brownsville, much of the vacant land near these smaller communities is found within the Brownsville Extra Territorial Jurisdiction, so the proposed subdivision plats go to the Brownsville authorities for review and approval. However, the enlargement of the MAB presents new challenges to the MPO staff in terms of coordinating planning efforts with these other communities.
- **Plan funding for LRPs.** The Brownsville MPO has identified projects to be built through 2029. The funding streams for each of these projects also has been determined.
- **Leverage projects with a residential focus to benefit freight.** Capacity improvements and new roadways ostensibly designed to benefit personal vehicle traffic associated with new residential subdivisions west of Brownsville also help with the flow of truck traffic. The Brownsville MPO encourages truck-friendly designs (pavements and geometries) on these roadways.
- **Situate MPO so it can do freight planning proactively.** Freight planning in Brownsville was initially driven by the urgent need to remove trucks and railcars from the downtown area. Through the completion of the Veteran's Bridge and the Brownsville Railroad Relocation projects, the Brownsville MPO has largely achieved this goal. Today, the MPO can be more forward thinking and address potential problems with freight movement before they arise.

Use of Freight Data and Analytical Tools

The Brownsville MPO uses data on truck and rail flows to monitor border crossing trends. Upward trends can indicate growing traffic volumes and possible capacity issues at the border crossings as well as increased truck and rail congestion in the MPO region. Downward trends have the opposite effect and presage potential economic problems because much of the Brownsville economy depends on trade with Mexico. The MPO would like to have more information about the commodities, particularly hazardous materials, being carried across the border, but the trucking companies have been very reluctant to release that information. Obtaining information about the origin and destination of goods moving across the border has proven to be even more difficult.

Development of Partnerships

The Brownsville MPO is an agency housed within the Brownsville city government. The city and the Cameron County governments, and their elected officials, are champions for transportation planning and the securing of funding in the region. This is important as the city and county can become involved in the politics to secure special funding, while the MPO cannot. While the region's first stop to secure project funding is through TxDOT, they also will go straight to Washington because the Lower Rio Grande Valley's infrastructure and border crossings are critical chokepoints with national implications on the flow of commerce. The completion of the Veteran's Bridge has demonstrated that cooperative efforts breed success and has stimulated interest in additional projects. Currently, the City of Brownsville, in partnership with Cameron County, is trying to secure federal funding for the West Rail Relocation Project.

The MPO also has a strong relationship with the Brownsville Chamber of Commerce, which is a voting member of the MPO. The chamber includes shippers, manufacturing, and distribution interests in its membership and this relationship is a means for ensuring that freight needs are defined and addressed by the MPO. The MPO holds meetings at the chamber, the chamber is a frequent visitor to the MPO, and the chamber has been involved in the planning of the East Loop Highway that will bring trucks directly to the Port of Brownsville from the Veteran's

Bridge, bypassing the need to use State Highway 4. The chamber has ensured that stakeholders attend key meetings (the chamber reconfirms attendance and the MPO presents the issues) and that the community realizes the importance of transportation projects. It also has encouraged truck-friendly roadway designs and is now advocating an examination of the use of separate truck lanes on the proposed East Loop Highway.

To foster a regional approach to transportation planning, the Brownsville MPO has worked with IMPLAN in Matamoros. A past cooperative effort involved software sharing to allow data sharing on their computers to improve coordination. These efforts have resulted in a coordinated binational land-use plan. This plan involved the careful lining up of truck routes, including mapping and the alignment of infrastructure on both sides of the border.

In terms of a communications strategy both to maintain credibility and gain support for its plans, the Brownsville MPO strives to maintain an image as an unbiased broker of information. This removes any perception of hidden agendas and helps the community reach consensus in its transportation planning efforts.

- **Act as an unbiased broker of information.** The Brownsville MPO develops trust, facilitating the participation and cooperation of a wide range of entities on transportation projects by acting as honest broker of technical information. On some issues the MPO staff does not provide qualitative answers, but strives to operate transparently, always adhering to established guidelines and rules. This approach gains the MPO respect, an especially important attribute when the community is faced with controversial or critical decisions.
- **Identify and involve stakeholders.** Stakeholders need to be identified and brought into the freight-planning process. The Brownsville MPO staff does not assume what other parties want. Stakeholders need to tell the MPO about issues and needs, and then the MPO can respond. Stakeholder involvement fosters responsibility and helps with implementation. Funding agencies are more responsive when they hear from a business or someone that would be positively affected by a transportation improvement. The Brownsville MPO assists stakeholders in articulating transportation needs. The other entities undertake the expense of traveling to Austin or Washington as part of the effort to secure project funding. The MPO considers the victories a result of a coordinated group effort.

Small/Medium MPO Case Study

Duluth-Superior Metropolitan Interstate Committee Duluth, Minnesota

MPO Overview

The Duluth-Superior Metropolitan Interstate Committee (MIC) was created in 1975 by the governors of Minnesota and Wisconsin, as the designated MPO for the Duluth-Superior urbanized area working cooperatively through the Arrowhead Regional Development Commission (ARDC) and the Northwest Regional Planning Commission (NWRPC). The ARDC and NWRPC are multicounty planning and development organizations operating in Minnesota and Wisconsin, respectively. While the ARDC and NWRPC cover a region about the size of South Carolina, the MIC's jurisdiction is in the immediate Duluth-Superior area.

Although the MIC's jurisdiction has a population of only 146,000, the area's role as a transportation hub for a large region translates to higher freight volumes than many more populous MPOs. At the extreme western end of Lake Superior, Duluth's economic legacy is tied to its port, the busiest on the Great Lakes, handling about 40 million tons of cargo per year. Historically, the port's highest volume commodity has been iron ore (taconite), mined in the nearby Mesabi Range, and shipped to steel facilities located throughout the Great Lakes St. Lawrence Seaway region. Beyond locally sourced taconite, the port ships other bulk products, including limestone, coal (arriving on unit trains from Wyoming's Powder River Basin), and grain from the Upper Midwest and Great Plains of the United States and Canada.

In the past decade, the region has experienced relatively slow population and employment growth compared with the nation's growth. Diversifying from an economy based on mining and transportation, Duluth has become the retail and healthcare center for the vast northeastern Minnesota and northwestern Wisconsin region. The city also is the gateway to Minnesota's North Shore, a major tourism corridor that stretches almost 150 miles along Lake Superior from Duluth to the Canadian border. The growing retail and tourism industries also have ramifications for the movement of freight in the Duluth-Superior area.

Consistent with its role as a major port, intermodal transfer point, and retail center, Duluth handles significant truck and rail traffic. Stronger world demand for iron, led by growth in the Chinese market, has stimulated a recent increase in mining in the Mesabi Range. Port-related rail and truck traffic (iron, as well as coal and grain), combined with trucks serving Duluth's retail industry and travelers bound for the North Shore, create freight flow and traffic challenges in the geographically constricted Duluth-Superior area (the city developed in a narrow band between Lake Superior on the east and a steep ridge on the west).

With unusually large volumes of truck, rail, and ship traffic relative to its size, freight planning is well-integrated into the transportation planning process at the MIC. This includes land use, port access, initiatives to separate truck traffic from autos in retail areas, and road network connectivity. The MIC has a Harbor Technical Advisory Committee (HTAC) that brings together municipal, state, federal, environmental, and private stakeholders with an interest in keeping the port competitive while strengthening the amenities that support the development of other economic opportunities in the region. Through HTAC and other initiatives, the MIC actively encourages and seeks private inputs to improve freight flows in the ARDC/NWRPC region.

Transportation Issues

In many respects, the Duluth-Superior economy is dependent on the competitiveness of its port. Goods must be able to flow into and out of the port efficiently (in terms of time and cost) and safely for the port to remain competitive. The port also must have the capacity to store goods

before (or following) shipment. These port-related needs must be accommodated in conjunction with the region's significant tourism and retail-related traffic. Freight issues (many of which are now being addressed with programmed infrastructure improvements) include

- **Separation of trucks from vehicular traffic.** Several factors contribute to the conflict between trucks and autos in the Duluth area. The busy port draws a steady flow of trucks for loading and offloading. Tourist traffic is strong because of Duluth's location between Minnesota's North Shore and large population centers to the south. Trunk Highway (TH) 61 on the North Shore is shared by tourists and trucks, many of them originating in Canada. Scheduled freighter service between Thunder Bay and Duluth, which kept many trucks off TH 61, was canceled in the 1980s for regulatory reasons rather than for lack of demand. Finally, as a regional retail center, trucks share the same roads as cars entering and exiting shopping centers located west of the city.
- **Landside access to the port.** Truck and rail access to the port has been an issue, with rail crossings and trucks limited by road geometries and rail crossings.
- **Competition from other ports.** More iron ore destined for the Far East is being carried by rail to ports in Vancouver and Prince Rupert, British Columbia. Duluth has to maintain and improve efficiency, including the reliability of freight flows to and from the port, to increase competitiveness.
- **Rail crossings.** Rail is a critical mode in Duluth, transporting large volumes of all three of the port's leading commodities: iron ore, grain, and coal. Rail crossings reduce speeds, cause delays, and are a safety issue.
- **Terrain.** Much of Duluth is sandwiched between Lake Superior to the east and a ridge to the west. This constricts vehicle flows, including trucks, to a handful of north-south corridors and even fewer east-west passages through the hills.
- **Port security.** In the aftermath of the terrorist attacks, the port area in Duluth is having to conform to strict (and sometimes costly) security directives mandated by the Coast Guard.

Incorporating Freight into Transportation Planning Activities and Developing Freight-Specific Initiatives

Within its jurisdiction, the Duluth-Superior Metropolitan Interstate Committee must respond to transportation needs that have local, regional, bistate, and international impacts. The MIC, through its own initiatives and through cooperation with other entities is involved with a range of freight planning activities in the Duluth-Superior area, including a Port Land Use Plan, Truck Route Study, Freight Movement Study, Rail Study, Landside Port Access Study, and a Freight Terminal Study, all completed since the late 1990s. Freight planning is included, explicitly in the MIC's LRP. The MIC's freight planning process is getting tangible results in the form of new projects (several close to completion or programmed) to remedy identified deficiencies. A programmed project to improve access to the port via Arthur Avenue will add capacity for trucks, improve geometries, reduce rail crossings, and allow longer trains to reach port facilities. Another programmed project, the Midway Road Project, will rehabilitate a major connector route that allows truck traffic to bypass the downtown area. This will include climbing and turning lanes so trucks can negotiate the hills more easily without slowing down traffic. In 2007, construction is set to begin on a loop access road that will eliminate much of the retail auto traffic from making numerous turning movements on the trunk highway near the Miller Hill Mall (a large retail complex on the western side of Duluth). This will ease congestion, improve safety, and help preserve TH 53's role as an intrastate connector. The MIC's engagement with others involved in transportation planning and the governance of the Duluth-Superior area, combined with its own approaches to data collection, analysis, and community involvement have allowed the MIC to address the Arrowhead region's freight planning needs effectively. Considerations that have contributed to this success include

- **Be a freight champion.** Champions for freight planning can change depending on the project or issue. Sometimes the MPO spearheads efforts, at other times it can be the Port Authority or city

hall economic development staff. These groups worked together to move the Arthur Avenue project forward and to secure federal dollars.

- **Separate and organize modes in LRP into “people moving” and “goods moving” categories.**
- **Include freight in corridor plans.**
- **Make level of effort in freight planning proportional to need.** In Duluth about half the MPO’s effort relates to freight planning, but this can fluctuate depending on need.
- **Include factors related to freight in evaluation criteria.** Freight-related criteria, including “project need and benefit,” “impact on network mobility,” and “multimodalism” account for 70 points of a 100-point project evaluation system. Using this system, the Arthur Avenue project to improve landside access to the port emerged as a priority after scoring highly in project need and benefit.
- **Stay abreast of training opportunities and dedicate funds so staff can attend.** The MIC’s staff attends relevant classes and seminars, including freight workshops (e.g., FHWA/NHI), GIS training, access management training (for cars and trucks—organized by MNDOT), as they become available. The costs for these training opportunities are covered in the MIC’s annual budget.
- **Benchmark freight planning to stay abreast of advancements in the field.** The MIC learns from and shares its freight planning experiences with others. This provides new ideas and allows the MIC to gauge what it already is doing well and what it can improve. The MIC interacts with other MPOs by attending Transportation Research Board conferences (including one that is specifically geared for smaller MPOs, the “National Conference on Transportation Planning for Small- and Medium-Sized Communities”) and American Planning Association events (MIC observes what other panelists have to say and, in some cases, presents its own experiences). When possible, given staff time considerations, the MIC does its own case studies on topics that are of growing interest (e.g., other MPOs’ experiences with truck route ordinances).
- **Set aside funding for “plan implementation.”** For each plan completed by the MIC, a portion of the budget is set aside to provide resources for follow-up activities to ensure that the recommendations are being implemented and remain relevant to the needs of the area. This funding allows the MIC to evaluate progress, determine what still needs (or does not need) to be completed, and change course, if necessary. As part of this process, the MIC revisits stakeholders to determine if the recommendations still address important needs and to understand if anything has changed that may affect the plan.

Use of Freight Data and Analytical Tools

The MIC uses surveys to better understand the needs of carriers and shippers in the region. While this is an effective approach for gathering information (2001 Truck Route Study and the Port Land Use Study currently under development), the MIC wishes it had a more comprehensive list of shippers, especially smaller ones, in the region so its survey coverage could be expanded.

The data and analytical tools used by the MIC include purchased Reebie data for detailed commodity and mode data, port-level freight shipments, rail frequencies (not commodities), GIS for geometries of intersections (in-house capability that is regularly updated), average daily traffic counts for trucks and autos (provided by MNDOT and WisDOT), proprietary economic forecasts (e.g., Woods & Poole), accident data, survey data, and stakeholder input (partnering—collaboration is needed to move projects forward and data, insights, and concerns from stakeholders are also needed in developing freight plans). The MIC’s forecasts are hybrids that combine proprietary and public (e.g., state demographer) sources.

The MIC would like more geographically detailed (place-level) freight data than what currently is available (county-level) from private providers of transportation market data. The lack of geographic detail available in the purchased datasets combined with the high acquisition costs

limit the applicability of these data. Individual shippers and freight generators in the Duluth-Superior area generally do not reveal specific information concerning their freight volumes.

The MIC does not do any truck modeling for its freight planning and does not believe that it would be an effective use of resources given the size of the MPO and other priorities. However, freight proximity (i.e., suitability of land for freight-intensive purposes) is a factor integrated into the agency's land-use planning models.

Development of Partnerships

The MIC coordinates with a number of agencies as part of its freight planning efforts. These include city and county governments, two state transportation agencies, and the Duluth Seaway Port Authority. The cities and counties are the implementers of significant portions of the MIC's plans, so relationships must be maintained to bring projects forward. The inclusion of city council members on Study Advisory Committees gives the city councils a sense of ownership on transportation projects and helps the projects through the approval process. The MIC also has developed strong ties to state transportation agencies. These ties, fostered by consistency in staffing (limited turnover), have increased the MIC's participation in state projects. The MIC has been invited to present its studies to other MPOs in Wisconsin and Minnesota. The MIC works closely with District staff to coordinate information gathering and program projects. The MIC also was a contributor to MNDOT in their effort to develop a statewide freight study.

The inputs of freight stakeholders (facilities, carriers, and businesses) are brought into the decision-making and planning processes through the HTAC, which is an advisory body of the MPO. The HTAC includes representatives from the grain, iron, coal, cargo, and harbor services-related industries. As a group, they support a thriving port, including dredging and maintaining industrial land uses, while seeking a balance with other uses (recreational and residential) that help to diversify the economy. Citizen groups and the HTAC talk together, share information, and reach consensus, sharing common goals of cleaning up the harbor area and keeping it competitive. A balanced approach is needed because the port is a significant economic generator although total tonnage is lower today than in decades past. Another committee, the more broad-based Transportation Advisory Committee (TAC), formerly included trucking and rail members (now represented on the HTAC). The involvement of freight interests on the TAC ended because the time spent on nonfreight obligations (pedestrian, bike, and transit) generally dominated meetings and the HTAC provided an adequate venue for addressing goods movement. The Minnesota and Wisconsin DOTs are members of the HTAC and TAC.

In addition to the HTAC, specialized advisory committees are set up to guide specific initiatives. The Duluth-Superior Truck Route Study, completed in 2001, included trucking companies as well as law enforcement agencies. It was helpful to get both perspectives on this study and provided truckers and law enforcement an additional venue for learning more about how the other operates and to improve collaboration.

To successfully gather input regarding transportation needs, the MIC goes directly to the region's businesses and other stakeholders for face-to-face meetings. This approach works far better than expecting shippers to be present at public meetings to express their concerns. The MIC attends trade meetings (e.g., International Shipmasters Association, Propeller Club, Grain Elevator and Processing Society, Duluth-Superior Transportation Association, and Superior/Douglas County Development Association) that bring together stakeholders (shippers, industry) that have economic concerns about the movement of goods in the Duluth-Superior area. At these meetings, the MIC learns about issues, trends, as well as the future vision of companies operating in the area, including what the companies need in terms of water, rail, and road infrastructure. It also provides a venue for shippers and carriers to vent any frustrations they may have regarding transportation in the region. The criticisms voiced by participants are almost always constructive.

The MIC's outreach approach keeps shippers engaged in the transportation planning process, helping to address their needs and ultimately improving the flow of goods in the region.

Beyond the trade meetings, the MIC also makes site visits to collect data and information from companies. The information gathered from these types of interviews has contributed to the programming of freight-related projects (Arthur Avenue) as well as land-use planning for the port area (maintenance of industrial uses, environmental stewardship, and the conversion of property to other uses) that will have a bearing on the volume and location of future freight movements. The long-term land-use planning process involves many stakeholders, including environmental concerns, with the goal of creating a defensible plan, formed through consensus, that will satisfy a range of needs.

Through HTAC, trade meetings, and site visits, the private sector makes recommendations concerning transportation priorities in Duluth-Superior. Although the private sector does not have a formal vote in the evaluation and selection of specific projects (other than indirectly through the HTAC), the evaluation criteria used by the MIC can encourage the passage of solid freight projects that help the flow of goods in the region. Freight-related criteria, including project need and benefit, impact on network mobility, and multimodalism account for 70 points of a 100-point system and have helped such freight-specific projects as the Arthur Avenue reconfiguration gain approval.

Small/Medium MPO Case Study

Lancaster County Transportation Coordinating Committee Lancaster, Pennsylvania

MPO Overview

The Lancaster County Transportation Coordinating Committee (LCTCC) has 22 voting members serving the needs of the nearly 500,000 residents of Lancaster County. Located in the South-eastern portion of Pennsylvania, Lancaster County is one of the fastest growing areas in the Commonwealth (adding about 4,000 people per year). Fueling this growth are very strong manufacturing, agricultural, and tourism industries, combined with proximity to Philadelphia, Wilmington, Baltimore, and Washington D.C.

Lancaster County can be accessed by the Pennsylvania Turnpike (two interchanges in the county), and several U.S. and state highways. Norfolk Southern provides Class I rail services and there is also short-line rail service. Public transportation is provided by Amtrak and bus service, but public transit is not a viable option for most residents and visitors.

Concerned about the growth in heavy truck traffic in the region, the Executive Director and Deputy Director of Transportation Planning applied for and received federal Borders and Corridors funding to conduct a freight study. The corridor was defined as Delaware and Pennsylvania 41, U.S. 40, and Pennsylvania 287 which form a nearly straight line between the Port of Wilmington and Harrisburg. The perception was that freight traffic used these local roads to avoid tolls on the PA Turnpike for shipments between the Port and Harrisburg. This perception was driven by the large number of “banana trucks” (Chiquita and Dole logos visible on the trailers) and the knowledge that the Port of Wilmington is the number one ranked East Coast port for fresh fruit imports. The study sought to develop strategies for diverting this through traffic to other routes or, especially, to the railroads.

One of the first things tackled by the LCTCC was establishing a steering committee. This was a multijurisdictional, public-private assembly of key regional stakeholders. It included

- Two state DOTs (Pennsylvania and Delaware);
- Six MPOs (Lancaster, Delaware Valley Regional Planning Commission [DVRPC], Wilmington Area Planning Council [WILMAPCO], Chester County, Tri-County, and York);
- FHWA;
- Pennsylvania Turnpike Authority;
- Trucking industry;
- Railroads; and
- Consultants from other major studies in the region.

The committee tried to recruit at the vice president or government affairs level, but a key criteria was to attract members who would participate in the meetings and review draft reports.

One of the primary results of the Wilmington-Harrisburg Freight Study (WHFS) was to assemble data about the movement of freight along the corridor. A surprising result was that the Port of Wilmington was responsible for a relatively small percentage of the trucks on the road (between the highly visible banana trucks were numerous unmarked trucks.) Another surprising result was that two-thirds of the trucks originated or terminated along the corridor. Armed with this information, the WHFS steering committee was better able to devise strategies for dealing with freight movement in the region.

Based on this experience, the LCTCC advises other MPOs to develop a good understanding of the movement of freight in their regions. This can clarify trends and correct misperceptions.

Incorporating Freight into the Transportation Planning Process

Planning by the LCTCC focuses on (in this order)

1. Highway,
2. Transit,
3. Bike/Pedestrian, and
4. Freight.

The LCTCC takes its lead from PennDOT and this prioritizing of transportation projects reflects PennDOT priorities. The MPO and DOT work closely on many transportation issues, though they seldom work together on freight projects. Freight has historically been viewed as a private sector issue and not a place where the LCTCC should focus attention. LCTCC does not have staff dedicated to freight transportation issues. PennDOT does have freight staff at the main office in Harrisburg, but it does not have dedicated freight staff at the district offices.

Given its participation in the WHFS and growing concerns about freight issues in the Lancaster area, the LCTCC is now involved in freight “for the long haul,” though resources are still an issue. In fact, the LCTCC has just added its first pure freight project to their TIP. Expansion of Norfolk Southern Railroad’s Dillerville Yard to create additional capacity is projected to reduce trucking of rail freight into Lancaster from Norfolk Southern’s Enola yard in Pittsburgh. CMAQ was used to provide 80 percent of the funding for this project and the other 20 percent came from a local match. The project will cost \$2 million for Phase I and \$10 million for all three phases.

In Lancaster County, the TIP is developed by the TIP Update Subcommittee. This committee comprises the LCTCC technical committee, staff from PennDOT, and the County Commissioners. The TIP is a 4-year program that is updated every 2 years. The process is

1. Determine which projects drop off the prior TIP;
2. Update the costs for the remaining projects and see how much money remains; and
3. Prioritize the new projects and add to the TIP based on available money.

The prioritization process uses a combination of volume, number of accidents, congestion, and sometimes job creation. For CMAQ money, the air quality improvements have to be considered. The highest priority is given to maintenance projects (typically taking 80 percent of the available funding) and then to new projects. MPO staff believes freight projects are at a distinct disadvantage to projects that “benefit all users.”

Anyone can submit a project for TIP consideration, but most of the LCTCC TIP projects come from PennDOT. The remaining projects are typically generated within the LCTCC or local municipalities. Very few are contributed by citizens or private sector companies.

One hope is that the WHFS steering committee can help identify freight-related projects for the TIP. Another effort underway is to work through the local chamber of commerce to spread the word to local businesses that they can submit transportation projects for funding consideration. Responses have thus far been slow, but it is hoped that the inclusion of the Norfolk Southern rail yard on the current TIP will spur more involvement by the private sector in the identification of freight improvement projects.

The LRTP does not include a freight section. However, for the first time, the most recent LRTP documents trends in truck traffic, promotes improved linkages between truck and rail, and encourages freight rail use.

Development of Partnerships

For the Wilmington-Harrisburg Freight Study, the LCTCC organized a steering committee focused on freight. This committee included two state DOTs, six MPOs, and private sector rep-

representatives. Although there are several large shippers in the Lancaster area, they were noticeably absent from the steering committee. The steering committee was involved in developing the regional freight profile and consultant selection process for the WHFS. The steering committee attended meetings and provided direction during the study. Upon completion of the study, the steering committee decided to remain intact and meet quarterly to discuss freight issues. The steering committee is still active and trying to expand membership to include shippers.

The LCTCC is fortunate to be in close proximity to the strong freight planning program at the DVRPC. A LCTCC representative is often present at the DVRPC quarterly Goods Movement Task Force meetings. One of the real strengths of DVRPC, which LCTCC is trying to emulate, is a broad-based involvement of goods movement stakeholders in identifying projects for the TIP. The DVRPC Goods Movement Task Force meetings typically include 60 to 70 attendees representing a broad spectrum of freight concerns (trucking companies, Class I railroads, short-lines, ports, air freight, PennDOT, NJDOT, DelDOT, MPOs, shippers, concerned citizens, consultants, etc.). DVRPC solicits freight projects from task force members.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

The LCTCC believes it is too early to determine if its freight efforts are a success, because they are “new and developing.” MPO staff believes the success it has had in conducting a multistate, multijurisdictional study can be replicated by other MPOs.

The primary advice LCTCC would give to other MPOs is to develop a thorough understanding of freight movement in their area. This not only allows better decisions to be made about projects to improve freight movement, but also better prepares the MPO to address public concerns. This information should include volumes, commodities, industries, and economic impacts.

Many projects benefit both freight and passengers, but these are usually sold solely on the passenger benefits. It will take some effort to sell the public on freight only benefits. MPOs should continue selling projects based on the passenger benefits, but begin integrating freight benefits as a bonus to acclimate the public to freight issues.

Finally, the MPO takes its lead from the state DOT. The LCTCC involvement in freight will ultimately mirror that of PennDOT.

Small/Medium MPO Case Study

Michiana Area Council of Governments South Bend, Indiana

MPO Overview

The Michiana Area Council of Governments (MACOG) consists of three counties with a combined population of approximately 500,000. There are several large manufacturing industries in the region:

- **Recreational vehicle (RV) manufacturing.** The MPO is home to the headquarters of every major RV manufacturer (15 to 20) in North America. These headquarters include manufacturing, administrative, and research and development activities.
- **Military and sport utility vehicle manufacturing.** AM General, manufacturer of Hummer vehicles, is located in St. Joseph County. Every Hummer, for both military and civilian use, is manufactured here.
- **Other manufacturing.** Other manufacturing in the region includes rolled steel, Honeywell airplane components, and three of the four largest orthopedic/medical device manufacturers in the world.
- **Distribution centers.** Two new distribution centers have recently opened in the region, including one for retailer A. J. Wright.

Several railroads provide service to the region, including Norfolk Southern, CSX, CN, and the Chicago South Shore, a short-line providing passenger and limited freight service to Chicago. The Elkhart & Western, another short-line, serves the Hummer plant and interlines with both the CSX and Norfolk Southern (though Norfolk Southern operates the Elkhart Rail Yard).

The region includes interstate highways and a toll highway which is managed by a public authority within the DOT.

Transportation Issues

Most of the region's transportation issues involve highways. There are a few transit issues (the MPO operates four transit systems—three in Elkhart County and one in Marshall County), but the majority of issues are highway-related. Specific hot spots include U.S. 31, which is being upgraded to a limited access facility in the region (currently in the Preferred Alternative Mitigation Package phase); SR 331/Capital Avenue (near the Hummer Plant), which needs to be upgraded to a six-lane limited access facility; and County Road 17 in Elkhart, a facility that is being four-laned through the entire county to the Michigan border (and possibly beyond). Highway capacity and access to the interstate system were two specific issues mentioned by the interviewees.

Incorporating Freight into Transportation Planning Activities

The MACOG's freight planning program has its origins in TEA-21, in which freight was included as one of seven factors for states and MPOs to consider when conducting transportation planning activities. The Indiana FHWA Division office encouraged all the MPOs in the state to take an active approach to incorporating freight into transportation planning activities. The FHWA's encouragement was echoed by MACOG's director, who encouraged her staff to learn more about the region's freight transportation system and its issues. The initial freight plan (completed in 2000) was the vehicle used by the MPO to learn more about the freight system in the region, the users of that system, and the region's freight issues. The plan was developed by using Census data to describe the region's socioeconomic conditions. In addition, freight flows into and out of the region were described using data derived from the 1993 CFS. These data were

developed as part of a project of Indiana University, which disaggregated state-level data from the CFS to the county level using employment and population statistics. The MPO was introduced to this project through the Indiana DOT. The plan was conducted by two junior-level staffers (recent college graduates) at the MPO. This provided two key advantages for the MPO: first, these staff members were very motivated and very interested in the topic of freight transportation and second, they were able to dedicate large chunks of time to the project (almost acting as dedicated freight planning staff).

The 2000 freight plan set the stage for the 2004 update. The driver of the 2004 Regional Freight Plan was the MPO's LRTP update (2005–2030), in which the MPO wanted to better address regional freight issues. Like the 2000 plan, the 2004 update was conducted entirely in-house. The goals of the freight plan were to

- Understand the issues facing the region's transportation system from the users' perspective and include those issues in the LRP;
- Evaluate how well freight transportation issues are being addressed in the region's existing TIP; and
- Engage the private sector freight industry (particularly the manufacturing industry) in the transportation planning process, particularly by soliciting project ideas for possible inclusion in future TIPs.

The regional freight plan was used as a mechanism to better understand the region's freight issues and assist the MPO in evaluating how it can go about incorporating freight improvement projects into the TIP.

Developing Freight-Specific Initiatives

Development of the MACOG Regional Freight Plan. The MACOG took the following steps in the development of the regional freight plan:

- **Set up steering committee.** Using existing contacts (from the 2000 Regional Freight Plan) and “cold calls,” the MPO set up a project steering committee to guide the development of the regional freight plan. The MPO worked with its local chambers of commerce (which included a transportation subcommittee) to identify other potential private sector contacts. The resulting committee consisted of
 - Major regional warehouse,ers,
 - Two regional motor carriers,
 - County representatives,
 - Regional airport authority representative,
 - Indiana DOT District office, and
 - Chicago South Shore Railroad.

It is interesting to note that this group met in person only once. The rest of the MPO's interaction with the group was via teleconference and e-mail (to review documents, data, etc.). The MPO believes that this was a key component in the group's ability to stay together. Participation was not a “time-drain” and led to continued interaction and quality, well thought-out comments on work products. The MPO now considers this group a FAC and plans to hold annual meetings.

- **Develop and conduct mail-out survey.** The MPO worked with the steering committee to develop a mail-out survey targeted at the region's freight stakeholders. Four different versions of the mail-out survey were developed to target manufacturers, warehouse,ers, motor carriers, and railroads. Questions included
 - What are the major transportation problems in the region that affect your profitability? (New hours of service regulations was a frequent response);

- What commodities do you produce/ship? (Responses were later coded into NAICS and displayed graphically);
- What are your relocation and expansion plans? How does transportation fit into those plans?
- What transportation system improvements are needed?
- How many trucks/trains do you operate? How many days per week? What are your inbound and outbound volumes?

531 surveys were mailed out and 139 were returned, representing a 26.2 percent response rate.

- **Collect other data.** The MPO also collected and used other data to describe the region. Census data were again used to develop a socioeconomic profile of the region. County-level commodity flow data, derived from the CFS by Indiana University, also were used. The airport authority, represented on the Steering Committee, provided air cargo data for the regional airport. In addition, county planners in the region were interviewed about land-use issues in the region.
- **Develop recommendations.** The MPO compiled the list of recommended actions from the survey responses and reconciled them to the projects included in the most recent TIP. The survey responses identified 21 specific projects, 12 of which already were included in the most recent TIP. The other nine projects will be included in the updated LRP and will be considered for inclusion in future TIPs. Many recommendations from the private sector involved “policy” issues such as raising speed limits, designating wide-load routes, and constructing more rest areas.

Currently, the development of the regional freight plan represents the only way that the private sector can recommend projects for inclusion in the TIP. The MPO is reevaluating how to better incorporate freight into the TIP development process without having to conduct a detailed survey every time. The relationships developed as part of the steering committee recruitment process may be one way to do that. There is no formal request for project ideas from the freight advisory committee (and no private sector representation on the MPO’s policy committee), but council members do provide informal recommendations to MPO staff about potential freight projects. MPO technical staff can then make recommendations to the policy committee through the technical advisory committee.

Development of Partnerships

Partnerships—Ties with State DOT. Indiana does not have a centralized freight point of contact, but it does have a rail division that was helpful in developing the regional freight plan. The MPO did gain access to the Indiana University CFS work via the state DOT. It is unlikely that the MPO would have been aware of this work and data without the DOT’s involvement. The MPO’s main contact with the state DOT is with the planning office. The MPO had two suggestions as to what kind of support the DOT could provide:

- Assistance in identifying major shippers; and
- Assistance in bringing the major freight stakeholders, particularly large shippers and carriers, to the table.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

The MPO had two recommendations for other small- to medium-sized MPOs that are just getting started in freight planning:

- **Get to know your area.** Freight is a key component of many areas’ transportation systems, but a lot of MPOs do not realize this. A main element in any freight planning program is to under-

stand who uses the system. Interviewing the local chamber of commerce is a good place to start, because it has existing relationships with local businesses and can provide good contacts. In fact, two of the chambers of commerce in the MACOG region have transportation subcommittees within their organizations.

- **Establish relationships.** Freight planning depends on effective relationships with the private sector freight industry. Developing and maintaining these relationships can be challenging, but they are absolutely necessary for effective freight planning.

Small/Medium MPO Case Study

Association of Central Oklahoma Governments Oklahoma City

MPO Overview

The Association of Central Oklahoma Governments (ACOG) is a medium-sized MPO located in Oklahoma City and serves the Oklahoma City Area Regional Transportation Study (OCARTS) area. ACOG covers multiple counties with a population just exceeding 1 million residents. It has an established freight system that includes all modes except waterborne. The region is experiencing moderate population growth, growing at about the same rate as the United States as a whole. The OCARTS area has a central domestic location that is equidistant to the Atlantic and Pacific coasts. I-40 cuts across the state and is a major route connecting the Los Angeles area (and its large ports) to destinations in the central and eastern parts of the country. I-35, going north-south, is a primary link for freight traffic between Mexico and the U.S. Heartland. Oklahoma City, with its General Motors auto assembly plant, other significant manufacturing facilities, and population base also is a significant generator of freight traffic.

ACOG's planning activities are organized into three teams:

1. LRTP, travel demand modeling, Congestion Management System (CMS);
2. Short-Range Transportation Planning, STIP, TIP, transit, public involvement; and
3. Socioeconomic data, land use, census (to supports activities in [1] and [2]).

Within the LRTP process, staff prepares an intermodal element that gives equal emphasis to freight, transit, and bicycle and pedestrian initiatives.

Incorporating Freight into Transportation Planning Activities and Developing Freight-Specific Initiatives

- ACOG began development of its freight program with the passage of ISTEA. ACOG took ISTEA very seriously. Federal regulations called for stronger attention to freight planning, and the OCARTS-area MPO responded accordingly. In addition, the local FHWA office was a very strong supporter of ISTEA. As such, the 2020 LRTP OCARTS Plan contained the first intermodal element with a freight component. This freight component has been updated with each subsequent LRTP update. The emergence and implementation of North American Free Trade Agreement (NAFTA) in the following years, and the impending large increase of truck traffic ensured that freight remained an emphasis of ACOG's transportation planning program, as it undertook its 2025 LRTP intermodal element.
- In-house staff provides the direction for OCARTS-area freight planning. Except for the 2020 LRTP intermodal element, and the stakeholder panel for the 2025 LRTP intermodal element, all freight planning activities have been done in-house at ACOG because of funding constraints. As such, staff has built expertise with each LRTP update. The intermodal element of the LRTP provides policy recommendations for freight. However, to date, no specific freight projects have been developed.
- Projects must be included in the LRTP to be in the TIP, the short-range element of the LRTP. Project identification in the LRTP is influenced by several factors, including definition of future needs and review of transportation model outputs. ACOG staff recommends projects and presents them to their Technical Committee, Policy Committee, and Board. Communities provide input by approving the projects or providing additional ideas. The final list is then prioritized using a quantitative tool. All projects are included on the prioritized list, and ACOG has not had enough money available for the recommended projects. Although there is no freight factor in this prioritization process, ACOG indicated that any recommended freight project would be carefully considered for funding.

- Each MPO gets funding for its TIP and criteria are used to select projects following a competitive process. Locals are included in the review process and projects are ranked. There is a freight component in the TIP specifically to address at-grade rail crossings. There has not been close coordination with railroad plans. Trucks are treated differently because they impact passenger moves. However, there are initiatives underway to close many at-grade crossings.
- Freight staffing is established every year in the OCARTS UPWP at approximately 0.5 full-time equivalent.
- In developing the 2025 intermodal plan element, staff looked to the Tulsa MPO (INCOG-Indian Nation Council of Governments). Tulsa staff had purchased Reebie data. ACOG purchased 1995, 2005, and 2025 datasets from Reebie to support development of the 2025 LRTP.
- ACOG is involved in Oklahoma DOT's (ODOT's) Commercial Vehicle Information Systems and Networks (CVISN) project as a participant.
- Staff keeps up to date on freight industry trends through FHWA's talking freight series, FAF, TRB, FHWA, and industry. ACOG explored the possibility of hosting the NHI/FHWA Integrating Freight course during its 2004 offerings, but was unable to secure the training.
- The ease of goods movement by truck is taken for granted by operators in Oklahoma. As a result, incident management is supported as a mechanism to protect mobility. Preservation of mobility is crucial. Incident management and ITS deployment is a focus for ACOG. Nonrecurring incidents are a major issue in the region. ACOG assisted in implementing projects such as the passing of a quick clearance law to minimize the delays resulting from unanticipated incidents.

Use of Freight Data and Analytical Tools

ACOG purchased Reebie's TRANSEARCH data twice (1995 and 2000 base years) in support of the 2025 and 2030 LRTP updates. The initial purchase included forecasts for 2005 and 2025. Data were validated by comparing the base year with the CFS at the state level. Staff identified the major commodities to validate industry sectors. An analysis of the data revealed a significant volume of through trips. Base year Reebie data can be validated fairly easily as staff experience grows. However, the forecasts are a big question mark because they are done by Reebie in a confidential (black box) environment. There was limited information available to calibrate the forecasts because of lack of data. Staff reverted to using the region's forecasted employment and population information. For example, staff compared existing population with existing food and then used forecast population to forecast food. No forecasts were purchased for the year 2030 and the 2030 LRTP development because of the black box approach and the cost.

As part of the 2025 LRTP update purchase, ACOG bought the third quarter 1999 freight locator information. This consisted of manufacturing information along with employment information and tons produced per year. Staff geocoded the information and used these data to complete a buffer analysis to see how close freight generators were to on-ramps, highways, and so forth. More than 93 percent of manufacturing facilities with more than 20 employees were within 5 miles of the interstate system.

ACOG staff also reported that the MPO's travel model has a truck trip table. The interviewees were unsure of the details of how the truck trip table was developed.

Development of Partnerships

The trucking industry in Oklahoma is very active and well positioned. It has a strong presence in the state, which has helped highlight the importance of goods movement. The Highway Users Federation also promoted the importance of goods movement. The Oklahoma Trucking Association is actively participating in the CVISN efforts.

ACOG has effectively involved the freight community in its region. It distributed a transportation survey to identify specific needs, and it has held focus groups and meetings to gather

input on policy issues. These mechanisms were used to develop the initial freight component of the 2020 LRTP intermodal element. ACOG had high turnout at its meetings and received very useful input from the participants. The comments/input were implemented into the intermodal element of the LRTP.

For the 2025 LRTP update, staff called upon a panel of peer experts in coordination with the FHWA peer-to-peer program; this included a transportation planning consulting firm, the Mid-America Regional Council (MARC, the Kansas City MPO), and FHWA's Southern Resource Center. ACOG presented its freight profile to this group of experts. Following a review, the panel came back with a long list of recommendations. These recommendations were incorporated into the profile and then the profile was presented to local stakeholders, including, ODOT, railroads, trucking association, rail association, and trucking companies. Many of the local stakeholders were the same companies and agencies involved in the initial freight element completed as part of the 2020 LRTP update. As part of the 2025 LRTP update, ACOG evaluated future truck routes using its travel demand model.

ACOG has strong relationships with the implementing agencies (municipalities, counties, state) in its region. However, staff noted that ACOG provides suggestions and does not have an active role in construction and maintenance activities. Therefore, there is no conflict.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

ACOG's freight program is policy driven based on data and industry input. The program is updated regularly as part of every LRTP update. To date, no critical freight issues have been identified. Staff believes the mechanisms are in place to address specific freight projects in the future as they arise. Ongoing monitoring of the freight system will continue based on industry representatives and the public informing staff of problems (a bottom up planning approach).

ACOG provided the following insights on lessons learned:

1. Building consensus and buy-in for a freight program is critical. You cannot successfully force projects, programs, and policies on local communities and industry.
2. Industry trends and current events should be tracked continuously between updates. Five-year incremental updates are not sufficient to capture the ever-changing freight environment.
3. Data availability is a very prominent issue. BTS data is great, but at the MPO level there are too many gaps in the data. Having to rely on one private company at significant cost is restrictive and limiting.
4. It is crucial to understand the specific needs of your region. Every region is unique in some way (population, demographics, political focus, geography, infrastructure, etc.).
5. Experience to date with peer-to-peer reviews has been very useful; the exchange of information and experiences among MPOs is great and should be encouraged.

In addition, ACOG identified the following as being potentially helpful to its freight planning efforts:

- ACOG wants assistance in the ongoing maintenance of data and information between its intermodal plan updates. If the U.S. DOT could provide organized freight data at the MPO level every 2 years that would be useful. This would be better than expensive and time consuming data purchases every 5 years.
- Continuation, enhancement, and updates to the FAF would be helpful to ACOG's freight activities.

Role of ODOT

ODOT coordinates closely with and supports the state's MPOs. ODOT reported having solid relationships with the state's MPOs. There is significant cooperation and coordination among

the MPOs and ODOT. When the MPOs have questions about freight transportation, ODOT provides them with the limited amount of information and data available. In addition, ODOT is very involved in the LRTP process. ODOT staff sits on MPO committees and represents the state system. ODOT also provides traffic count data and additional support to the smaller areas with more limited resources.

All ODOT's planning activities are centralized at the headquarters' office while district offices emphasize maintenance and construction activities. TIPs and STIPs are revised annually. An effort is made to minimize the number of amendments, although it is paramount that TIP and STIP reflect current conditions. Volume to capacity (V/C) ratios are the most significant ranking factor in ODOT's project prioritization process. Medium and long-term projects are developed to address problems that have been identified throughout the state. Cost-feasibility studies are then completed, followed by incorporation of the project into the TIP based on V/C ratios, sidewalks, timeframe, and schedule. ODOT has not developed specific truck measures. If a project does not have a high enough V/C ratio, the truck percentage or volume does not matter.

ODOT's long-range intermodal plan, including a freight study, was updated in 2000. ODOT used the BEA data to analyze the volume of freight and its growth and developed estimates of volume moving into, out of, and through the state. ODOT found a larger percent of freight flows moving through the state than anticipated. These estimates were forecast to 2025. Thus far, ODOT has not done much with this study. The volume of freight was quantified and that is where the process stopped.

Overview of Oklahoma Freight System and Issues.

- ODOT management is more focused on existing needs and deficiencies as opposed to future conditions. Freight is not specifically included in the current program.
- MPOs are interested in freight and modeling; many would like to see truck only lanes.
- Oklahoma has tried to become a trucking hub, but has not been as successful as anticipated. The trailer registration program is an example of this effort.
- The single largest truck complaints relate to accidents, safety, and congestion. Sixty percent of congestion is caused by unplanned incidents.
- Four and one-half times more freight moves through Oklahoma than into or out of it.
- Lack of rail data is an issue. Rush hour trains create problems for the state's large number of at-grade crossings.
- ODOT continues to improve its relationship with private industry.
- Oklahoma's commercial vehicle network consists primarily of the NHS; the only ODOT restrictions apply to bridge postings; gross vehicle weights (90,000 lb on state highways and 80,000 lb on the Interstates); and double and triple trailers, which are restricted to the Interstate system with a 5-mile connector to access terminals.

ODOT Freight-Related Initiatives. Specific freight initiatives in Oklahoma have focused on multistate and Interstate projects.

- The Oklahoma Transportation Center (OTC) at Oklahoma State University currently is developing a freight model based on the BTS's CFS. It will be a four-step model and ODOT expects it to be too academic and data intensive for practical use by ODOT and the state's MPOs. There is no statewide travel model in place today. There is some desire within ODOT to develop a model, however, they no longer have the staff within ODOT to do it. Tulsa, the Oklahoma City area, and Lawton have models. Tulsa will be receiving the freight model currently under development, but ODOT anticipates needing help using it. Further, if freight projects are identified and developed, ODOT expects the MPO to look to the state for funding.

- A freight study is currently being undertaken as part of the 2005 Intermodal Plan update. This work is being completed by a consultant and is focusing on identification of market and economic niches that are supported by transportation. In southern Oklahoma, there has been a large increase in the number of warehouses and distribution centers to support the North Texas economy. Compared with the Dallas-Fort Worth area, Oklahoma labor is inexpensive. Operations are driven by just-in-time practices and there is less congestion in Oklahoma. However, I-35 is becoming congested by these new developments and there are growing concerns about continued growth. This study will become the intermodal element of the LRP and it is being conducted for the Department of Commerce. Consultants will need to look at LOS, congestion, and so forth. Inputs also will be gathered from the motor carrier industry.
- The I-35 NAFTA Study, completed a few years ago, developed recommendations. Currently, ODOT is completing a port needs study for landside access issues. The I-35 corridor study recommendations focus on increasing lanes.
- I-40 is being redesigned and relocated in Oklahoma City, including a new facility with two through lanes. Weigh-in-motion data currently indicates that 10 percent of all traffic on I-40 consists of trucks. The new facility will have barrier divided lanes to support through moves over a 3.2-mile stretch of roadway; the old I-40 infrastructure will be torn down and replaced with a six-lane boulevard; ODOT worked with the MPO on the environmental impact statement; the MPO was responsible for modeling the various build alternatives.
- ODOT is participating in a regional multistate corridor project called Ports to Plains, which runs from the Texas-Mexico border to Colorado. This involves a four-lane-divided highway that will be designed for trucks. A marketing plan currently is under development to stimulate use of the new corridor by trucks. Planners also are looking at bypass opportunities to create economic development.
- ODOT recently became a participant in the CVISN program.

ODOT Recommendations for the Guidebook.

- Case studies and examples would be useful as part of the Guidebook. For example, ODOT would like to know how traffic counts can be adjusted to better reflect truck factors for the V/C calculation. Currently, there are no passenger car equivalents in the model making the traffic impact calculations conservative.
- MPOs have completed inventories of their transportation systems (rail, port, NHS connectors, highways, etc.). Once they collect freight data, the question is what do they do with it to ensure freight is incorporated into the planning process? That is the missing link between freight and the LRTP process.
- There have never been any citations given as penalties for lack of freight planning. Freight planning has been encouraged, but never called out as missing. ODOT leadership focuses on highways. There are no benefits for incorporating freight projects. Projects must be in the TIP or STIP to be eligible for funding; freight gets no benefit in this process.
- To promote freight planning the following is needed: additional funding, guidance past development of an inventory, and federal requirements and funding as opposed to encouragement. In addition, there needs to be a champion, perhaps by linking the benefits of freight planning to economic development.

Small/Medium MPO Case Study

Pima Association of Governments Tucson, Arizona

MPO Overview

The Pima Association of Governments (PAG) is the MPO for the Tucson, Arizona, metropolitan area. The MPO serves all of Pima County, which includes a large portion of south central Arizona. Although Pima County covers almost 9,200 square miles (about the size of Vermont), more than 70 percent of the land area is controlled by the federal or tribal governments and an additional 15 percent is controlled by the state of Arizona. Most development and transportation facilities are concentrated in the eastern third of the county around Tucson.

PAG's population increased by about 29 percent between 1990 and 2002, with a 2002 population of almost 860,000. Population is expected to double again by 2050, with nearly all growth continuing to occur in the eastern third of the county. Although PAG's median age is in line with national averages, the area has large concentrations of young adults (associated with the University of Arizona) and retirees. PAG's population also tends to have a higher level of educational attainment than the state and national averages, although median household income is lower in the PAG region than for the state and country, related in part to PAG's lower than average cost of living.

PAG's employment structure is heavily oriented toward services, government, and trade. Manufacturing employment is just more than 9 percent of the total, which is less than the national average of about 13 percent. At the same time, PAG's manufacturing employment tends to be oriented towards high tech industries such as aerospace and defense. This pattern has continued over the past few years with new employers in the areas of telecommunications, aerospace, and manufacturing. There is a major initiative within the region to develop value added manufacturing enterprises that can capitalize on the large number of freight shipments that pass through the PAG region on the way to and from Mexico.

There are two international border crossings in the county. The largest border crossing in the area is along Interstate 19 in Nogales, immediately south of the PAG region. Interstate 10 is the major east-west truck route through the county. Union Pacific is the only Class 1 railroad operating in the PAG region, and there are two short stretches of track owned by regional railroads. There are two intermodal terminals in Tucson, one at Tucson International Airport and a second rail/truck terminal that has recently opened. The PAG region has only one NHS Intermodal Connector that is freight-related; the other three serve passenger facilities.

Transportation Issues

Like many other sunbelt communities, the PAG region is struggling with implementing transportation investments to keep up with population and employment growth while also trying to maintain and update prior investments. At the same time, PAG is continuing a transition from an economy dominated by the military and defense contractors to one that is more tourism- and service-oriented. Overlaying all of these issues is the continued control that state, federal, and tribal governments have on most of the land in the region, which greatly influences development patterns, where transportation facilities can be built, and how external passenger and freight traffic accesses the region. Some of the current transportation issues that these forces have spawned include facilitating cross-town travel with a limited freeway system, expanding transit versus building more roadways, accommodating increasing international truck movements, identifying infrastructure investment that will enhance economic development, and generating additional local funding.

Incorporating Freight into Transportation Planning Activities and Developing Freight-Specific Initiatives

Jurisdictions within Pima County have been very active in addressing freight issues for more than 25 years. PAG pointed to the 1981 Transportation Plan, work for which began in 1977, as the genesis of formal planning for freight needs. This plan included a number of specific arterial roadway improvements (e.g., Alvernon Road, Kolb Road, Kino Parkway) to address unmet freight movement needs and anticipated future growth in several parts of the region. While the projects were not developed solely for “freight reasons,” the design and coordination of these facilities was influenced by existing and expected truck movements in the vicinity.

Some of the other activities that have occurred since that time include

- **Intermodal Management System (IMS).** PAG developed its initial IMS in 1995, and currently is in the process of updating this plan. PAG’s IMS tends to be dominated by smaller-scale spot improvements (e.g., improved turning radii at intersections) that have been identified by member jurisdictions and that tend to be easier to fund and implement. The projects in the 1995 IMS, all of which have been implemented, were described as each having a freight element but were not characterized as exclusively “freight-oriented.” Projects in the IMS were included in the RTP, and inclusion in the IMS is believed to have greatly eased the process of getting the projects into the TIP.
- **“Port of Tucson” Intermodal Facility.** Shortly after the 1995 IMS was completed, Southern Pacific announced plans to close its Tucson intermodal facility. PAG became heavily involved in efforts to prevent facility closure because it believed that an intermodal facility was necessary for the region’s economic competitiveness, and it was concerned about the potential impact that increasing truck traffic could create on highway facilities, particularly through Downtown Tucson. PAG spearheaded a data collection effort to help understand intermodal shipping needs throughout the region, including northern Mexico. A few years later, PAG was approached by an individual who wanted to privately develop a replacement intermodal facility. PAG’s data and analysis were used by this individual to help verify the economic viability for such a facility and to subsequently finance and build it.
- **Corridor Studies.** PAG spearheaded special studies within the past 5 years of the Sahuarita Corridor, the Tangerine Road Corridor, and the Southeast Area Arterial Study. Each study addressed the impacts created by through truck traffic, among many issues.
- **Economic Development.** Truck traffic to and from Mexico passes directly through Downtown Tucson irrespective of its ultimate destination. Over the years, PAG has conducted several studies to help conceptualize potential truck bypass routes. More recently, however, PAG has been investigating whether some of these bypass routes also could be used to encourage the development of businesses that could provide value added services for the goods that already are being shipped through Tucson. The Sahuarita Corridor is viewed as one such corridor that could combine a truck bypass and industrial development; the City of Tucson currently is working on the companion specific plan to the corridor study.
- **RTP.** PAG currently is engaged in a major RTP update at this time. RTP debate is focused heavily on funding and transit versus roadway issues. Freight issues, quite frankly, are a secondary consideration with discussions concentrated most heavily in the three special study areas. Results from the Southeast Area Arterial Study are receiving some added attention because this subregion (near Tucson International Airport) is expected to be the major industrial and intermodal growth area for the region. The other two studies had received more attention during the 2001 RTP update. Results from the IMS update are expected to feed into the next RTP cycle.
- **Project Selection.** Both the RTP and TIP include a freight evaluation criteria; it is essentially a qualitative discussion of how a project could affect or interact with freight. However, it has no specific weighting for project selection.

At an MPO level, PAG struggles with staffing and resource issues. PAG has two staff members that explicitly address freight planning, but both also have many other responsibilities; about one-half of each person's time is spent on freight issues. This staff time and special freight studies are funded through the UPWP using a mixture of sources; staff members were not aware of any earmarked funding for freight planning. PAG devotes resources for ample staff training, but it has had difficulty identifying appropriate freight training activities. To date, PAG has relied on FHWA freight seminars and will be jointly hosting the NHI freight planning course in September 2004.

Use of Freight Data and Analytical Tools

PAG has been struggling with what it perceives as a lack of freight-related data. It is in the early stages of learning how to collect and compile freight data. PAG believes there is an increasing awareness at the state level for improving freight data accessibility. Yet technical staff does not have much good information. PAG specifically cited interest in better origin-destination data, FAF data, more reliable truck counts, rail freight data, and cross-border data.

PAG's travel model includes a single truck trip table, but has not used it to assist in freight analysis. Freight planning work in the region is undertaken with truck counts provided by Arizona DOT. However, PAG's planners acknowledge the count and vehicle classification data provide no information on what is being carried and whether the vehicles are empty or full. Also, they have noticed that many of the truck counts are estimated through sporadic 4-hour counts at single locations along a long stretch of freeway. PAG has also noticed issues with the vehicle classification data from the state's Motor Vehicle Division because this agency classifies heavy pick-ups and sport utility vehicles as trucks.

PAG has generally treated collection of freight data as a one-time or special activity rather than an ongoing commitment. Nonetheless, there have been many activities undertaken over the past decade to improve the quantity and usability of locally generated freight data:

- Participation in the Canamex and Southern Passage studies provided general freight information that helped provide the context for the role of Tucson in interstate and international freight movements, and the role of the Nogales border crossing in influencing east-west freight shipments through the region. However, these data were not detailed enough for modeling purposes.
- PAG initiated a survey of Mexican shippers in the late 1990s to help determine the types of goods that are shipped, how rail was or could be used for these shipments, and the conditions under which rail might be considered. This effort was undertaken in response to a proposal from Southern Pacific to close the intermodal freight/truck terminal in Tucson. PAG believed the survey provided compelling information on what types of freight were moved and why, and the information was used by a private sector consortium to help justify investment decisions in a new intermodal yard.
- PAG has developed some spreadsheet-based internal tools to help with things like forecasting intermodal lists. These tools were assembled from pieces of data and reports that were prepared by other organizations and have tended to be developed on an as-needed basis for very specific projects.
- PAG is planning to undertake an external survey that is likely to include a freight component. It is also in the midst of a freight movement study to understand the type of freight, origins and destinations, and means of conveyance for shippers across southern Arizona. Another ongoing activity is assessing the feasibility of shifting the goods processing point for international shipments from Nogales to Tucson.

PAG emphasized the importance of understanding what is trying to be accomplished before starting to collect data. Being networked with others in the profession will help provide suggestions

for addressing data shortcomings. Planners also should use Internet resources and peer exchange links (e.g., FHWA's Freight Planning Peer Exchange Listserv) to stay involved. The key is to have a willingness to make adjustments in the work plan if data cannot be found.

There also was an opinion expressed that a key to successfully using freight data and addressing freight issues is to have a staff person whose job is to deal with freight, and who takes ownership of the issue. There was even a suggestion that new freight planners should learn what is involved with freight movement by "shadowing" someone at a freight terminal for a few days. The key is to develop some private sector perspective on the topic.

Development of Partnerships

PAG's staff members expressed that they have been very successful in building strong partnerships to promote regional planning and investment decisions, including investments that have a heavy freight orientation. While PAG does not propose or implement individual projects by itself, there is some sense that the existence of only six local jurisdictions, two tribal governments, and one county spread over a very large geographic area makes it easier to have everyone maintain a regional perspective. PAG suggested that many of the local jurisdictions actively address freight access needs as a function of their economic development and land-use planning processes, and that many specific roadway improvement projects were undertaken in reaction to unmet freight needs or anticipated future growth.

While the citizens and governmental jurisdictions in the region are very active in community planning processes, PAG also tries to develop realistic processes to engage the private sector. PAG has a Freight Advisory Task Force (the mailing list includes more than 100 private sector representatives) and is very aware that the private sector "operates in a different world" and needs to be engaged with sensitivity.

PAG convenes the task force when there is something specific to discuss rather than on an ongoing, routine basis. PAG has found that the private sector is willing to participate when the discussion can be framed in terms of issues that directly affect business on a real-time or short-term basis (e.g., customs clearance and border slowdowns)—activities cannot move on a government timeframe. Toward this end, PAG invites task force members to provide suggestions on specific projects. This type of input was used to help develop the 1995 IMS and is being contemplated for the current IMS update. Also, by focusing on short-term projects, PAG has been able to completely implement the 1995 IMS. This is viewed as a major boost for credibility.

PAG's staff believes strongly that freight-related task forces need to be run differently from other routine MPO matters and committees. Meetings of such groups should be held infrequently and only when a valid reason exists. The meetings need to move crisply, have a well-defined agenda, and stick to a limited timeframe. Also, building a partnership with a key member of the private sector and having that person serve as chair of the task force in a prominent manner can lend credibility to the entire process. Part of the reason that PAG came to this conclusion is that, in spite of repeated efforts, it has been unable to find a task force member from the private sector who is willing to serve on a separate TIP subcommittee; there is a decided lack of interest in the longer-term perspective of this other subcommittee.

PAG also has been invited to participate in a few multistate freight planning studies, including Canamex and Southern Passage. Projects such as these and Arizona's Statewide Transportation Plan provided important information on the magnitude of freight growth. However, there was some feeling that the state transportation departments dominated these studies, and some MPOs and other stakeholders that had specific data needs were "shut out"

of project scoping and ongoing work activities. In essence, PAG's experience is that the data and results from these large-scale endeavors tend not be applicable to regional and sub-regional freight planning needs. This problem has been exacerbated by what it perceived as a lack of statewide coordination on freight planning and outreach. PAG believes that it would be more effective to have a two-pronged (occasional and ongoing) coordination process on freight throughout the state rather than the study-specific process that has occurred to date.

Small/Medium MPO Case Study

Polk Transportation Planning Organization Bartow, Florida

MPO Overview

The Polk TPO is the MPO for Polk County in central Florida. It is charged with transportation planning for a large, economically diverse, fast-growing, and multicentered region. Polk County is the fourth largest county in Florida. No single city dominates, with five small- to medium-sized cities: Lakeland, Bartow, Winter Haven, Haines City, and Lake Wales clustered in an east-to-west band going through the center of the county.

Polk County's location, directly between the populous Tampa-St. Petersburg and Orlando metropolitan areas in central Florida and its proximity to Interstate and Florida Intrastate Highway System (FIHS) highways make it a popular distribution center for companies wishing to serve the region or the entire peninsula. Beyond freight related to warehousing and distribution, Polk County also is one the largest centers of phosphates production in the world and is a national leader in citrus farming. Phosphates and associated fertilizer production have been a foundation of the region's economy for decades, with hundreds of trucks and railcars moving between production facilities in Polk County and the Port of Tampa on a daily basis. Polk County produces 10 percent of the nation's oranges and the citrus industry, with its heavily loaded trucks bound for processing plants located throughout central Florida, also places significant demands on the county's roadways.

Polk County is located on Interstate 4 between two fast-growing large metropolitan areas and is also experiencing significant population growth. Between 1980 and 2000, Polk County's population increased by 50 percent, more than twice the rate posted by the United States, and forecasts expect Polk County to continue to grow faster than the nation in the future. The expanding population combined with Polk County's proximity to major tourist destinations (Disney World is just over the county line and the Gulf Coast's beaches are only an hour to the west) puts a lot (and a growing number) of automobiles on the county's highways.

An increasing population, more personal vehicles, and tourist traffic have led to congestion that can conflict with Polk County's freight-intensive citrus, phosphates, and distribution industries. Larger numbers of vehicle trips that correspond to an expanding population, such as commuting to jobs, going to retail centers, and bringing children to schools add to congestion on key corridors that are also used intensively by Polk County's industries. For this reason, the Polk TPO has to meet the dual challenges of accommodating more people while keeping freight flows for its critical industries moving.

With large local industries, a crossroads location, and a population that is expected to grow indefinitely, the Polk TPO has successfully initiated a series of projects to improve access, add capacity, and better separate trucks from residential traffic. While there is no formal link between Polk County's freight stakeholders and the TPO, the needs of industry and carriers are successfully transmitted to the TPO and result in tangible improvements. The success is due to strong cooperation between the TPO, local economic development organizations, the FDOT, local governments, and the county.

Transportation Issues

The future competitiveness of Polk County will depend, at least in part, on its ability to sustain its key industries (and attract new ones) while preserving a quality of life that continues to draw new people and retirees. Efforts to maintain efficient freight movements, mitigate congestion, and reduce accident rates all serve to enhance the attractiveness of the county as a place to

operate a business, work, visit, and live. As it works to address a range of needs in the county to meet these goals, freight-related issues encountered by the Polk TPO include

- **Separation of trucks from vehicular traffic.** Fast population growth has reduced the performance of intraregional highways, such as U.S. 27 and U.S. 92, because they are used increasingly for local trips. The congestion adds to the costs for trucks using these routes and is a safety issue.
- **Fast population growth.** Polk County, like other fast-growing counties, must continually add transportation capacity to keep up with residential growth. While many of these projects benefit freight as well, this could diminish the resources available for other freight-specific projects. Overall, the TPO believes that it directs more of its staff resources to respond to population induced demand for roadways and transit, rather than to freight.
- **Residential encroachment on freight routes.** County roads traditionally used by citrus and phosphates trucks are experiencing more residential development. This creates conflicts with personal vehicles and, in some instances, pushes trucks to use less congested, but longer alternatives.

Incorporating Freight into Transportation Planning Activities and Developing Freight-Specific Initiatives

The Polk TPO addresses a range of transportation needs that affect the movement of freight throughout a greater region, extending to Orlando, Tampa-St. Petersburg, and points south. The Polk TPO's 2025 LRTP update identifies the need for improved freight in a detailed manner. The plan is guided by the planning factors detailed in TEA-21 and includes specific projects to improve freight mobility. The TPO's freight planning process is resulting in tangible improvements in the form of new projects (several close to completion or programmed) to remedy identified deficiencies.

One of the Polk TPO's biggest success stories is the West Memorial (U.S. 92) Interchange on I-4 in the northwestern part of Lakeland. This full movement interchange significantly improves truck travel patterns by providing direct east and westbound access to I-4 for trucks operating to and from Lakeland's large distribution facilities (groceries, furniture, automotive parts, etc.). Presently, trucks must use surface roads through the city of Lakeland to reach access ramps for I-4.

The interchange project was the result of a focused effort, involving multiple parties, that would not have resulted from a typical planning process (i.e., FDOT models did not initially justify the major expense of the project). Shippers and carriers using the industrial area in northwest Lakeland, frustrated by poor access to I-4, communicated the need for the interchange to the Lakeland and Central Florida EDCs. The communication of this need was facilitated by a longstanding relationship between the companies (includes large employers critical to the Polk County economy) and the EDCs. The importance of the improvements was then relayed to the Polk TPO. With the need for an improved interchange documented, the Polk TPO worked with FDOT to come up with an affordable and fully functional solution to the problem. The result was a full movement "hammerhead" interchange design that could be built entirely within existing right of way and at less cost than an earlier design. With support from the freight community, the mayor of Lakeland, the TPO Board, the local community, and backing from the FDOT district office, the revised interchange was programmed as part of a larger project to widen I-4 between Orlando and Tampa.

Another project also involving the inputs of shippers and the economic development community, the Lakeland Intown Bypass, will provide better access to the northwest Lakeland industrial area while removing trucks from downtown streets (and thus improving the environment for traditional retail, recreational, and commercial downtown uses). Construction on the final

segment of the bypass is set to begin in FY 2006–2007. Considerations that have contributed to the success of the Memorial Interchange and Intown Bypass projects and to the Polk TPO's overall freight planning approach include

- **Act as a facilitator and establish a working relationship with freight stakeholders.** The Polk TPO facilitates the freight planning process in the region by coordinating between local governments, local business interests, the economic development community, and FDOT. The Polk TPO works with businesses and economic development officials to understand the needs of area shippers.
- **Justify freight projects by tying them to economic goals.** A visioning process for Polk County pointed to a need to diversify its economy by attracting higher paying jobs and nonresidential development. Transportation projects to support the movement of freight (e.g., associated with warehousing and distribution facilities, manufacturing, etc.) can be a foundation for economic development efforts to strengthen the economy.
- **Have a planning process that places a premium on the movement of freight.** The realization of freight projects is the result of a continuum of planning activities that involves understanding shippers' and carriers' needs and then translating those into programmed projects. This involves evaluation criteria that allow freight projects to rise to the top and strong relationships with the implementing agencies (local, county, state, and federal) that can get the projects done. In Polk County, the transportation planning process has the ability to recognize freight-specific projects, put those on the top of the list, and then communicate priorities to FDOT.
- **Include factors related to freight in project evaluation criteria.** If candidate transportation projects pass an initial screening for fatal flaws (e.g., division of communities; adverse impacts on wetlands), they are then evaluated on a 100-point system designed to adhere to the planning principles of TEA-21. Freight-related criteria ("Freight/Goods Movement—Economic Competitiveness") account for 20 points and include access to major public facilities, transportation facilities (airports, rail terminals, intermodal transfer), and regional employment centers, as well as roadways that are designated as part of the FIHS. The Polk TPO's evaluation criteria helped the Memorial/I-4 interchange and the Lakeland Intown Bypass projects become programmed investment priorities.
- **Create parallel systems to separate regional and local traffic.** The Polk TPO is involved in a subarea plan for the fast growing area along U.S. 27 in the northeastern part of the county. The primary objective of this plan is to create a local collector road grid network to parallel U.S. 27. This would separate local from regional traffic, improve safety, and reduce congestion. U.S. 27 is on the FIHS and is designated by FDOT's Strategic Intermodal System, but has become a collector road for the subdivisions that have grown in tandem with Polk County's population. A separate grid would help separate trucks from vehicles and protect the viability of U.S. 27 to serve the purpose (as an intrastate connector) for which it was built. The Polk TPO also is facilitating the development of a "Corridor Access Management Plan" (CAMP) between Bartow and Lakeland on U.S. 98 as part of a cooperative effort also involving FDOT and local governments. Under CAMP, service roads will be built to create a parallel transportation system that relieves local traffic from U.S. 98. Such a system will allow U.S. 98 to better function in its role as an intrastate highway, connecting different parts of the state.

Development of Partnerships

Regional coordination. The Polk TPO participates in two regional organizations of multiple MPOs, one representing the MPOs located within the greater Tampa-St. Petersburg area and the other representing MPOs from the greater Orlando area. The West Central Florida Chairs Coordinating Committee (CCC) includes Hernando, Hillsborough, Manatee, Pasco, Pinellas, Polk, and Sarasota counties, while the Central Florida MPO Alliance includes Brevard, Lake, Marion, Orange,

Osceola, Polk, Seminole, Sumter, and Volusia counties. Together, the two regional organizations include about 40 percent of the Florida population.

The CCC is legitimized by a formal interlocal agreement to coordinate transportation planning. The group has developed a regional LRP that identifies key regional projects, including those that enhance freight mobility (a criteria for selecting the projects). By being a member of the Central Florida MPO Alliance, regional priorities that affect Polk County such as improvements to U.S. 27 (in both Polk and Lake counties) can be more strongly advocated with a single voice to state and federal delegations. By working together, the intent of these two regional organizations is to implement a transportation system that more optimally addresses the mobility needs of the region and presents a unified voice for the region when presenting investment needs to decision-makers.

The importance of regional collaboration is heightened by FDOT's proposed regional investment strategies. The policy framework developed for the SIS (Strategic Intermodal System) Strategic Plan and FDOT's Strategic Transportation Investment Policy proposed a new framework for identifying and prioritizing projects of "regional significance." Under this framework, the SIS would be FDOT's first priority for capacity investments, and there would be increased emphasis on these regional facilities for remaining state discretionary transportation funds for non-SIS capacity projects. These projects would be identified and prioritized through a consensus process involving MPOs and counties not in MPO areas, augmenting existing MPO and county planning activities and reflecting regional priorities. "Regionally significant" facilities would include major regional freight terminals and distribution centers as well as rail, highway, and waterway corridors that are key components of regional freight networks, among other criteria proposed by FDOT.

Ties to local and state decision-makers. The Polk TPO has good working relations with the county, FDOT, local economic development offices, and local governments. The TPO Board provides a forum to facilitate communications between affected parties and decision-makers. The Polk TPO works cooperatively with FDOT. A solid relationship, without adversity (neither FDOT nor the TPO blame the other for things out of their control), helps freight-related projects move forward in Polk County.

Small/Medium MPO Case Study

Roanoke Valley-Alleghany Regional Commission Roanoke, Virginia

MPO Overview

The Roanoke Valley–Alleghany Region has a long history as a center of freight activity within Virginia and for the eastern seaboard. It is best known as the former headquarters of the Norfolk and Western Railway (subsequently merging with the Southern Railroad to become the Norfolk Southern Corp), and sits at the intersection of several rail lines of Norfolk Southern and one of CSX Transportation (CSXT). However, today the region, which is crossed by I-81 and I-64 and several primary highways, serves more as a truck freight distribution center. Situated in relatively close proximity to Virginia’s Hampton Roads port facilities and to a number of major metropolitan areas within a 250-mile radius (sufficiently close for a truck to go and return while conforming to a day’s regulated hours of service), the Roanoke Valley has attracted major retail distribution centers in recent years.

The MPO coordinates transportation planning in the region’s urbanized area, including all or parts of five counties: Franklin, Roanoke, Botetourt, Craig, and Alleghany. The organization is housed in the Roanoke Valley Alleghany Regional Commission (Commission) and is staffed by the Commission. A separate rural transportation program also is managed by the Commission. The MPO is just under the 200,000 population threshold, where greater federal planning requirements apply, and where additional resources and authority are available.

Substantial growth in truck traffic on I-81 in the last decade has led to public discussion about improvements to separate trucks from passenger vehicles and pushed the awareness of freight as a transportation issue in the region. Heavy commercial vehicles constitute more than 25 percent of traffic on the Interstate with some sections exceeding 40 percent. A recent study⁴ found approximately half of all truck movements on I-81 are long distance or more than 1,000 miles. The question of diverting truck freight to rail is part of the debate in the region.

Developing Freight-Specific Initiatives

Comprehensive Freight Study. The MPO undertook a comprehensive freight study in 2001 to better understand freight issues and needs and to educate policy-makers and the public about the importance of freight to the region. The study was initiated by the MPO, but the state played a critical role by providing the freight data. Even with the data in hand, being able to contract for the technical work required careful planning and budgeting by the MPO staff to use carryover funds from 2 years as well as the current year budget.

The study focused on freight originating, terminating, or circulating in the region, rather than long-distance traffic flowing through the region. The analysis was based largely on information from the 1998 Virginia TRANSEARCH Database developed by Reebie Associates and provided by Virginia DOT (VDOT) to all the state’s MPOs. Sixteen million tons of freight with a value of more than \$30 billion was included in the analysis.

The scope of work included an option either to develop modeling capability or to conduct a survey of shippers and carriers. The staff chose the survey option, which provided a wealth of information on current activities, attitudes, and issues of the local freight community. The study concluded in January 2003 with recommendations for 10 small-scale capital projects such as signage and intersection improvements, urban development and zoning changes to better incorpo-

⁴Reebie Associates, *Interstate 81 Toll Impact Analysis*, prepared for Virginia Department of Rail and Public Transportation, December 2003.

rate freight, and the formation of a freight advisory committee. A brochure, “Freight: It’s About Time,” was developed to promote the role of freight in the region and publicize the recommendations of the study.

Prior to the study, the MPO’s efforts were focused on passenger needs, including bicycle and pedestrian studies. The freight study has since established a framework and set of continuing activities for freight planning. The 2004–2005 work program assigns a staff person approximately 25 percent of his/her time to devote to the follow-up activities, including supporting a FAC and working with local governments on adoption of planning guidelines and zoning regulations. Other staff members also participate in the freight activities. In 2004, an updated LRP was adopted that included goals for freight, which were informed by the study.

According to MPO staff, the primary support for spending resources on freight emanated from the business community. However, the idea for the study originated with the former MPO director, who did research on how other MPOs were approaching freight issues and drafted the scope for the consultant study. The staff believes the consultant effort was critical to accomplishing these objectives, as no individual would be available full-time to conduct even a limited assessment.

At the state level, VDOT also has provided technical support to the MPO in addition to its purchases (and subsequent distribution) of freight data. The freight coordinator is working on a scope for a statewide freight study that will include more information on economic effects and could provide further information to the regional planning agencies.

The freight study represents a very significant effort on the part of a medium-sized MPO, which faces many of the same issues and public concerns as much larger regions, but with fewer staff and budget resources. The study’s cost amounted to about one-third of the annual budget. The continued support by the board as evidenced in allocating staff time and budget for ongoing freight activities is also significant given the competing demands on an MPO staff that is equivalent to about three full-time employees. But the significant effort required to launch the comprehensive freight study all but ensures that another major initiative in freight will not be undertaken for a number of years.

Use of Freight Data and Analytical Tools

The TRANSEARCH data provides a picture of freight activity that is invaluable according to both MPO and VDOT staff. However, the data are more appropriate at the state and inter-regional level. There remains a need to collect local use (traffic counts and classification) information for developing regional plans and specific improvements.

It is important to note that the VDOT supports the modeling needs of the MPOs. The state had several reasons to purchase the Reebie data, including the development of a freight component for the state model. The additional cost for use by the MPOs was less than \$30,000. The VDOT freight coordinator reports that three other MPOs have made significant use of the data.

Another issue impacting the usefulness of data is the confidentiality concerns associated with specific geographic regions. For example, to transfer rail data to the MPOs, VDOT had to aggregate the data records because of concerns over confidentiality of data obtained from the STB. VDOT statute allows the state to use disaggregated data and to refuse to divulge it if requested under Freedom of Information Act requests. The MPOs do not operate under the same privilege and, thus, data provided for rail by the STB must be aggregated to a higher level. This further reduces the value of the information to the planner.

Development of Partnerships

An important follow-on activity has become known as the “Regional Freight Forum.” The Forum is intended to provide business-to-business contacts among shippers, receivers, logistics,

and support businesses, as well as a private sector view of the transportation planning process. Three meetings have been held since the report was issued, or about one every 6 months. Invitees include the freight businesses as well as local and state planners. More than 150 invitations were sent for the most recent meeting, with about 35 attending a breakfast meeting that included presentations on key projects. Planning and holding these meetings requires significant staff time, so the objectives and possible outcomes need to be clearly established. According to both MPO and VDOT staff, there is heightened interest in freight due to the attention being given the I-81 issue and planning for a new road, Interstate 73. Thus, it is not clear whether interest in the meetings can be sustained.

The MPO staff reports that one significant problem in attracting and retaining the interest of the private sector is the uncertainty surrounding the programming of projects and the long lead times involved. Under the best of circumstances, a project in the MPO plan requires 3 years before it may be implemented through the state's capital process (6 years would be more typical, with many never making it through the process). An exception in Virginia occurs when an incorporated municipality decides to take on a project. In this case, each municipality has an allocation of state funds through the Urban Program and these projects can be implemented much more quickly than those relying solely on federal and other state funds. Staff points out that the private sector has a much shorter time horizon because of the necessity of focusing on the daily needs of their businesses. This makes it hard to commit much time to a process where the return is beyond the normal business plan timeframe. A former MPO director agrees that getting freight-only projects in the pipeline is hard. He believes they generally need to have another purpose or impetus to get implemented.

In the staff's terms, the work on getting local governments to adopt freight provisions in planning and zoning regulations will be slow. Staff reports that it needs to have more examples of model provisions and where such regulations have been adopted. Nevertheless staff is hopeful of seeing some concepts such as the freight village included in comprehensive plans as these documents are revised.

One of the MPO's senior transportation planners also worked for another MPO within the state and tried to engage the community in planning for freight shortly before coming to the Commission. This staffer developed and conducted an additional survey of the freight community in the other MPO region and started a freight advisory group, which did not attract much interest. This staffer believes strongly that there is not enough information available on the links between freight issues and the economy, both in general and for the specific community involved, to interest decision-makers.

Guidance Sought from this Guidebook. MPO staff is looking for several types of guidance:

1. Information that helps make the case that freight is an important issue in communities, particularly on economic effects such as jobs creation. Information targeted to decision-makers would make it easier for staff to devote time and budget to freight, but there also is a need for information directed at the local consumer in terms of how these issues affect them and the personal pocketbook.
2. The MPO operates a regional planning academy to try to improve understanding of the planning process and products. How-to information on freight planning for this more "willing" audience and information to help planners in the region get started are also needed.
3. Best practice examples are needed that describe innovations in land-use management for areas affected by freight, such as zoning and comprehensive plan provisions.
4. Techniques and suggestions for attracting and retaining the interest of the freight community on one hand and local planners on the other would be welcome. VDOT staff suggested making meetings more clearly opportunities for business and social networking. The planner responsible for the outreach effort underscored the benefit of providing food and setting the time for early in the morning before potential attendees get to workplaces.

Small/Medium MPO Case Study

San Joaquin Council of Governments Stockton, California

MPO Overview

The San Joaquin Council of Governments (SJCOG) is the MPO for San Joaquin County in the Central Valley of Northern California. The MPO includes the cities of Stockton, Lodi, Tracy, Manteca, Lathrop, Ripon, and Escalon, and is located about 75 miles east of San Francisco and 45 miles south of Sacramento. Historically, the county has been an important agricultural center in California. Over the past 20 to 30 years, however, San Joaquin County's population has skyrocketed as it has grown into a bedroom community for the San Francisco Bay Area and Silicon Valley. This residential growth has been heavily concentrated in the central and southwestern parts of the county between Stockton and Tracy.

SJCOG's population increased by about 30 percent between 1990 and 2002, with 2002 population about 597,000. Population is expected to increase by another 50 percent by 2025. San Joaquin County's population is younger than state and national averages reflecting the large immigrant population and a preponderance of young families that are attracted by the relative housing affordability compared with the Bay Area. SJCOG's population has a significantly lower educational attainment level than state and national averages, with only about 14 percent of the population having a bachelor's degree or higher.

SJCOG's labor force is highly influenced by the county's proximity to the Bay Area and Sacramento. About 25 percent of the labor force (50,000 of the 201,000 workers) commutes to jobs outside of the county, a significant increase over the 17 percent out-commuting in 1990. Interestingly, about 16 percent (32,000) of the jobs in the SJCOG region are held by people who reside outside of the county.

SJCOG's employment structure is relatively diversified with services, trade, and government each making up about 20 percent of the total employment in the year 2000. Manufacturing and farming represent about 12 percent and 11 percent of total employment, respectively. Services were the fastest growing employment sector during the 1990s.

San Joaquin County has a fairly sizable transportation infrastructure owing to its key location between San Francisco, Sacramento, and Los Angeles, as well as the significant geographical barriers created by the Sierra Nevada Mountains to the east and the Coastal Range to the west. Nearly all surface freight and passenger traffic along the west coast passes through the county, and a significant portion of rail traffic headed east of California also passes. Interstate 5 and State Route 99 are major north-south freeways that have high volumes of truck traffic, while Interstates 580 and 205 provide access to the San Francisco Bay Area via the Altamont Pass.

Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) maintain high-volume freight lines through the county, with both rail lines continuing to the Port of Oakland. Both rail lines also maintain intermodal rail yards in San Joaquin County. The Port of Stockton is a deep draft and barge port about 75 nautical miles inland from the Golden Gate Bridge with facilities for dry and liquid bulk materials, break-bulk, and containerized cargoes. The county also has a commercial service airport and two short-line railroads.

Transportation Issues

Transportation issues in San Joaquin County tend to be dominated by economic forces from outside the region. The large extent of out-commuting to the Bay Area and the jobs-housing imbalance throughout many communities in Northern California lead to a high degree of long-distance commuting and resource needs for major infrastructure investments and transit

operations to serve the commute. The Port of Oakland and rail yards in the Bay Area also tend to have a spillover affect as growth and the sufficiency (or insufficiency) of landside accommodations at these locations greatly influence freight terminal operations in San Joaquin County.

There is also a tremendous volume of through travel, both rail and highway, in the Central Valley. SJCOG and other Central Valley MPOs often find it difficult to get a handle on the nature and origin-destination of through traffic, so it is difficult to adequately plan for these needs. Nonetheless, SJCOG finds that through traffic combined with the out-commuting mentioned, overwhelms many major transportation facilities.

SJCOG staff is also trying to deal with a lack of interest of decision-makers and the general public in freight issues and through traffic. Many people seem more concerned with the impact that freight and through travel create on the community, rather than trying to accommodate it. In fact, in a survey of local elected officials, SJCOG found that freight ranked 13th in importance among 14 possible issues. SJCOG indicated that its most effective way to keep a focus on freight is to frame the issue in terms of economic development needs.

In spite of its role as a major bedroom community to the Bay Area, San Joaquin County is a relatively poor community. It has great difficulty with local revenue generation, yet seemingly has overwhelming needs (many of which are related to through travel and freight). The county also is heavily agricultural in nature, which creates temporal spikes in population and trucking demand at several times in the year.

Over the past few years, SJCOG also has had to begin addressing some very pressing environmental justice concerns for communities near the Port of Stockton. As the Port has tried to expand and improve access from Interstate 5 into the facility, SJCOG found itself moderating a very contentious situation between the Port and several low-income and minority neighborhoods that were opposed to increased levels of truck traffic. SJCOG expects that many MPOs face similar situations because ports and other freight facilities tend to be surrounded by Environment Justice communities. SJCOG learned that it could not approach the problem by thinking it could simply minimize new impacts. The communities wanted existing impacts to be solved before they would even engage in discussions about new impacts.

Incorporating Freight into Transportation Planning Activities and Developing Freight-Specific Initiatives

Freight-related technical activities and project generation are generally focused on access routes to major destinations such as intermodal yards, the airport, and the Port of Stockton. There also tends to be interest on Interstate 580 between San Joaquin and Alameda Counties because this corridor is a major truck access route into the Bay Area. There tends not to be a high-level freight focus in the planning process due to a combination of factors, including decision-maker priorities, lack of dedicated funding, lack of stakeholder involvement, and staffing and resource (data) limitations at the MPO. In the few cases where this “big picture” focus exists (e.g., on Interstate 580), Caltrans or some other major external stakeholder has tended to be a major proponent.

There are three major freight-related initiatives that are influencing discussion for the RTP and the proposed extension of a local-options sales tax:

- The Port of Stockton continues to plan for expansion with its recent purchase of Rough and Ready Island from the U.S. Navy. However, the Port is struggling with developing a primary access route into this facility while also uniting it with the existing complex. Many community members seem focused on minimizing the impact of this expansion on specific neighborhoods and on Interstate 5 near Downtown Stockton rather than on trying to facilitate access for this important economic development project. Several individual port access components have been identified for the RTP, but an overall strategy is still in development.

- SJCOG is working with Union Pacific to fund several access upgrades to the intermodal yard in Lathrop. Specific projects have been identified for many years, but have been awaiting funding commitments and prioritization.
- The Arch-Sperry connector, which would connect the BNSF intermodal yard with State Route 99, is a major element within the RTP. Many separate corridor studies have been performed for this corridor, which also happens to bisect the major employment growth area for the county. The effort within the RTP has been focused on linking suggestions from these separate studies into one coherent corridor strategy. The RTP includes a six-lane concept for the corridor, and several individual elements have been subsequently programmed in the TIP.

The RTP and TIP evaluation processes include special qualitative consideration for projects that support job development, but there is not specific consideration for freight issues. SJCOG staff indicated that it keeps an eye out for projects that clearly support goods movement, but most project proposals tend to include just an estimate of truck traffic within the overall evaluation process for factors such as congestion reduction.

SJCOG characterized its own freight planning process as having minimal effectiveness; staff believes it has been able to resolve particular problems effectively, but has not had a significant effect on goods movement in the region.

Use of Freight Data and Analytical Tools

SJCOG believes it has very few reliable data sources and tools with which to conduct freight planning. The regional travel model does not have a freight component, which restricts the ability to perform “what-if” scenarios for freight projects. Most recent model refinement work has been focused on air quality analysis, and near-term enhancements are expected to be in the transit area. Instead, SJCOG tends to rely on truck classification counts from local cities and the state DOT to conduct trend analysis. Staff has noted some data quality problems with the classification data and it has no information on the nature and volume of goods moving in the trucks, but the MPO has no other data alternatives. There have been a few special studies, such as the Port of Stockton’s Port Access Study, that have collected more detailed goods movement and truck traffic generation information, but these have been one-time rather than ongoing activities. The state DOT has provided financial assistance for some of these special studies, but has otherwise not been a provider of freight-specific data or training.

SJCOG would like access to more and better data and tools. However, the lack of staff resources is an obstacle. SJCOG has one staff member who spends about half-time on freight issues, including public and private sector coordination. The MPO finds this time limitation a real hindrance in getting ongoing training in freight planning and analysis. There are many data sources, tools, and sketch planning routines (e.g., the Quick Response Freight Manual was mentioned), but there is not adequate time for thorough training.

SJCOG would like a freight planning Guidebook to provide specific information on how to collect better data without running up against proprietary issues. SJCOG believes that this Guidebook can be crucial in helping make the case for spending more resources on the planning of transportation needs that truly drive economic growth.

Development of Partnerships

SJCOG does not have a freight-related task force or subcommittee for the MPO. Instead, SJCOG participates on two multicounty task forces that address freight and broader transportation issues.

The Tri-County Freight Advisory Council comprises the MPOs in San Joaquin, Stanislaus, and Merced Counties, as well as the state DOT and several private sector organizations. The task force meets quarterly and tends to focus on operational issues affecting freight traffic rather than on

major long-term infrastructure investments. The task force is chaired by a highly respected representative from the California Trucking Association, which has been cited by many individuals as greatly enhancing the credibility of the task force.

SJCOG also participates in the Interregional Partnership with the Stanislaus County MPO and the Counties of Alameda, Contra Costa, and Santa Clara in the San Francisco Bay Area. These five counties have a very integrated economic and residential structure, with a lot of long-distance commuting occurring between them. In prior years the group has generally tried to address issues related to jobs-housing balance, although issues more directly related to transportation and goods movement have been arising more frequently in recent agendas. The five counties are finding themselves increasingly impacted by what they perceive as an inability of the Port of Oakland to accommodate landside growth. They are finding that intermodal activity in rail yards in San Joaquin and Stanislaus Counties is driven to a large extent by what is occurring at the Port of Oakland, and this is leading to heavily increasing truck volumes on interregional routes such as Interstates 205 and 580.

SJCOG was a member of an advisory council for a recently completed goods movement study undertaken by the Metropolitan Transportation Commission, the MPO for the San Francisco Bay Area. SJCOG is also one of the signatories for the I-5 Western Coalition that is forming among COGs and state DOTs in the western United States. The group, which is focusing on the impact of NAFTA on the Interstate 5 corridor, has recently adopted its guiding principles but has yet to formalize a work program.

SJCOG also participated in a study of the California Interregional Intermodal System (CIRIS) concept, a proposed container shuttle train between the Port of Stockton and the Port of Oakland that is seen as a way to reduce interregional truck traffic. The CIRIS project has been off and on, and was recently hindered by an inability to garner local transportation sales tax funds for initial operational strategies. Overall, SJCOG indicated that the lack of a dedicated funding source, particularly locally derived, that could assist with implementing small-scale freight projects on a quick cycle is a major hindrance in more actively engaging the private sector. This problem is compounded by the existence of many statutory allocations of state funding to specific (non-freight) categories. SJCOG's perception is that most private sector groups, particularly the major railroads, do not like to extend significant involvement to long-term planning and corridor studies.

Small/Medium MPO Case Study

Southwest Michigan Commission Benton Harbor, Michigan

MPO Overview

The Southwest Michigan Commission (SMC) covers two “study areas”: the Cities of Benton Harbor and St. Joe and the Cities of Niles and Buchanan. Staff describes the region’s economy as “flat-lining,” with very little growth expected over the next 25 years. The region was the site of some significant race riots in 2003. Staff indicated that there is still lingering resentment in the region and a “divide” between Benton Harbor and St. Joe, the main study area in the region. Benton Harbor is predominantly African-American; few residents even have a high school education (staff estimates that only one-third of those of working age have a high school diploma). Its twin city, St. Joe, is mainly white, with more than 90 percent of residents having a high school education or higher.

The major industry in the region is Whirlpool Appliance, which has its world headquarters in Benton Harbor and employs approximately 3,000 in the region. Whirlpool’s facilities include administrative, research and development, and manufacturing activities. Another industry in the region, Bosch, manufactures auto brake parts and employs approximately 1,000. Atlantic Automotive, also an automotive parts manufacturer, employs approximately 400.

The MPO has two standing committees: the technical advisory committee (TAC) and the policy committee. There is no private sector representation on either of these committees, though Cornerstone Alliance, the local economic development agency, and the local airport authority are members.

Transportation Issues

Several transportation issues are affecting the MPO, including the following:

- **Pavement stress.** There is a concern that “through” truck traffic may be causing inordinate pavement wear in the region, particularly on I-94.
- **Truck-auto conflicts.** The MPO is increasingly concerned with safety and is particularly concerned with truck-auto conflicts, because many of the trucks serving the region travel along local streets and mix with passenger traffic.
- **Truck traffic patterns.** The MPO also is concerned with truck traffic patterns and how these patterns affect economic development, air quality (MPO region was recently designated as nonattainment), and community livability, and is beginning to collect data to try to describe truck travel patterns.
- **Access to interstate highways.** MPO is attempting to improve access to I-94 via U.S. 31.
- **Relationship with economic development agency.** Cornerstone Alliance is the region’s economic development entity and is represented on the MPO’s policy board. Cornerstone Alliance recently won approval (from the state) for a new bridge between St. Joe and Benton Harbor. The MPO was very surprised by this and is concerned that not enough is known about how this new bridge will affect existing economic development efforts, traffic patterns, and environmental quality in the region (the last impact is a particular concern, because the MPO was recently designated a nonattainment area). Most in the MPO feel that the bridge is a “physical and symbolic” reaction to the 2003 riots.
- **Use of freight rail.** While most of the MPO’s issues involve highways, they are also interested in finding out if freight rail is a viable alternative for shippers in the region. This type of analysis, however, may be rather advanced for the MPO right now. The MPO is somewhat concerned that an increase in freight rail activity may translate into an increase in truck traffic in the region.

Incorporating Freight into Transportation Planning Activities

The MPO is currently updating its LRTP and is attempting to incorporate freight issues into that plan. In the most recent LRP (2000–2025), freight was addressed “in a paragraph” and the FHWA Michigan Division Office stressed that freight should be more fully addressed in this update (2005–2030). The MPO has decided to concentrate on truck traffic and its impact on the region’s pavement system. The emphasis on freight planning (at this initial stage) is fully supported by the MPO director. The MPO is taking a three-step approach to address freight issues in the region:

- **Collect data.** The MPO is collecting data on truck traffic using existing truck and traffic counts from the state DOT and from the regional counting program and is concentrating (at least for this update) on collecting truck volume information rather than commodity flow information. They believe that, for small- to medium-sized MPOs, knowing the volume and weight of trucks in the region is more important than knowing the commodities handled. Knowing travel time would be helpful, but the MPO is taking “baby steps” and is not collecting that type of information for this update.
- **Map to local roadway network using GIS.** The MPO has a GIS staffer in-house (part-time employee). It is interesting to note that the MPO’s GIS network is tied into the state’s system, which makes it easier to coordinate GIS efforts between the state and MPO.
- **Identify high-volume truck corridors.** Using the results of the GIS analysis, the MPO will identify high-volume truck corridors. This information will be used in two ways. First, it will provide freight-related information to the local implementing agencies in the MPO region (county road commissions and localities). The hope is that this information will be used by these agencies to “target” their proposals for freight (local implementing agencies bring projects to the MPO for consideration in the TIP). Secondly, the MPO wants to use the information to help get “buy-in” on TIP projects from regional stakeholders by demonstrating that certain projects (those on high-volume corridors) could have regional benefits.

The MPO also stressed that learning about truck travel patterns is a critical component of learning about the transportation system in the MPO region—the LRP would not be complete without at least a “back of the envelope” analysis of how trucks move within the region. By understanding truck travel patterns, the MPO will be better able to address freight issues when setting goals and objectives for the LRP.

Currently, there are no freight-specific criteria that the MPO uses to evaluate projects for inclusion in the TIP, although some (e.g., economic development) may benefit freight in the process. Projects are evaluated on several factors: safety (which used to be much further down the list, but now is the number 1 or number 2 priority), effect on “drivability,” benefit-cost ratio, economic development potential, access/connectivity, and environmental justice. Typically, the MPO has about \$1 million per year available for projects.

Use of Freight Data and Analytical Tools

The MPO is beginning to collect rudimentary freight data (through truck counts) to support its freight planning activities, such as freight impacts on pavement systems and congestion. The MPO is using truck counts from the DOT and its local counting program to help identify key truck corridors. The SMC is primarily interested in three types of truck movements:

- **Interstate/Interregional movements,** which strictly travel through the region. These movements have little local impact other than on the interstate highway system.
- **Regional movements,** which have an origin or destination within the MPO region. These movements have some significant local impacts, because trucks enter or exit the interstate system onto or from local roadways.

- **Local movements**, which go from point-to-point within the region. These movements also have significant local impacts.

In addition, Michigan DOT has begun to support its MPOs by providing regional travel demand models. The DOT realized that out of the 14 MPOs in the state, only one (Southeast Michigan COG, the MPO for the Detroit area) had both the staff resources and the expertise to develop travel demand models in house. As a result, the state DOT has taken the lead in developing these models for the MPOs. This arrangement is a “win-win” for both the state and the MPOs: the MPOs get a travel demand model from the state while the state ensures that a consistent modeling structure is used statewide. The development of the travel demand model for the Southwest Michigan Commission has just started; it is not certain whether the model will include a freight component or how it will account for freight vehicles.

Development of Partnerships

The MPO has a strong relationship with its local implementing agencies. Staff believes that this is true of most small- to medium-sized MPOs, where relationships between institutions are often conducted on a more personal level. The MPO has not done any outreach to the private sector freight industry and does not maintain any kind of formal relationship with the private sector in the region.

The MPO’s relationship with the state is strong, as well, though the Michigan DOT does not have a freight planner at the central office. Instead, each MPO is assigned a state DOT coordinator. The relationship between the MPO and the DOT coordinator is strong. The state coordinator often provides guidance as to the best way to “frame” projects for inclusion in the TIP and provides workable solutions (win-wins) to complicated problems. If the state DOT had a freight coordinator, the MPO would look to that coordinator to provide the following:

- **Provide a peer-to-peer exchange program for small- to medium-sized MPOs.** The best way to replicate successful practices in other regions is to talk to the people behind them. The MPO stressed that an active peer-to-peer program targeted at small- to medium-sized MPOs could be very beneficial.
- **Provide a listserv (or similar information sharing method) for small- to medium-sized MPOs.** Listservs, such as the Freight Planning listserv maintained by FHWA, are effective outreach and information sharing mechanisms. Many of the existing listservs, however, provide information about freight planning relevant to large MPOs or state DOTs that does not always resonate with smaller MPOs. There may be an opportunity to create a freight planning listserv that is targeted to the needs and issues facing small- to medium-sized MPOs.
- **Train MPO coordinators in freight issues.** The Southwest Michigan Commission relies heavily on its state DOT MPO coordinator. However, this coordinator does not have a background in freight planning. In addition to acting as a centralized POC for freight issues, the state freight coordinator could also train individual MPO coordinators in freight issues, allowing them to better support the freight planning needs of small- to medium-sized MPOs.

Small/Medium MPO Case Study

Susquehanna Economic Development Association– Council of Governments Lewisburg, Pennsylvania

MPO Overview

Susquehanna Economic Development Association-Council of Governments (SEDA-COG) has been designated a local development district (LDD) by the Appalachian Regional Commission (ARC) and as a rural planning organization (RPO) by the Commonwealth of Pennsylvania. The original mission of RPOs was to promote economic development. There are seven RPOs in Pennsylvania. SEDA-COG covers 11 counties and about 750,000 people. These 11 counties represent all or part of three MPOs: Centre County MPO, Lycoming County Planning Commission, and Tri-County Regional Planning Commission. Pennsylvania mandates that RPOs carry out the same activities as MPOs, including LRTPs, TIPs, and UPWPs. The voting members of SEDA-COG's executive board currently do not include a freight representative, although recently a nonvoting freight representative has been added.⁵

In February 2004, SEDA-COG hosted the first meeting of its new FAC. The FAC has about 55 members from both public and private sectors. A list of members' affiliations is at the end of this summary. Staff hopes that the FAC can recommend policy actions and become involved in developing ranking criteria. The committee is evolving and is also very informal. The informal character of the committee is reflected in its meetings, which are held quarterly in the morning. They include presentations, special guest speakers, agency updates, and a "free-flowing discussion." After lunch, members of the committee interact. For instance, rail shippers and operators will have conversations and discuss their needs. SEDA-COG is "looking to build on this momentum and keep it going." Draft TIP and LRTP project ranking criteria have been developed that emphasize freight priorities. Ultimately, staff hopes it can also get recommendations from the FAC on specific projects, such as access road and operating condition improvements.

SEDA-COG is also unique among RPOs and MPOs, because it is probably the only such organization that also is a transportation *provider*. For more than 20 years, the agency has been involved in preserving rail freight service in central Pennsylvania through an entity called the Joint Rail Authority (JRA), which currently owns approximately 200 miles of freight railroad short-lines in the region along with several buildings. SEDA-COG provides planning, property management, and administrative assistance to the railroad, although the actual operations are run by a subcontractor. The JRA has been cited internationally as a best practice for public-private partnerships; it helps keep SEDA-COG involved in retaining local industry, which is important because manufacturing jobs served by rail service traditionally pay much higher wages than average. However, until the creation of the FAC, freight activities within SEDA-COG were typically operations-related and issues were dealt with on a case-by-case basis. The FAC has facilitated a more active planning based approach to freight transportation.⁶ Manufacturing jobs served by rail service are traditionally much higher paying than average. Until about 1 year ago, because of the JRA tradition, freight activities within SEDA-COG were typically operations-

⁵Although SEDA-COG covers 11 counties, for transportation planning purposes it does not include the two counties that constitute independent MPOs (Lycoming and Centre Counties) or the county included in the Harrisburg area MPO (Perry County). Those three counties, nevertheless, will participate in the regionwide freight planning process through their representatives at FAC meetings.

⁶JRA recently lost an important customer: International Paper Company, which used 8,000 carloads per year. This loss, while costly to the region and to the JRA, helped SEDA-COG to realize and, perhaps redouble its efforts to retain local industry through effective freight planning and rail operations.

related. Even truck and aviation issues were dealt with on a case-by-case basis. With the advent of the FAC, planning aims to take a more prominent role in the region's freight activities.

Incorporating Freight into Transportation Planning Activities

SEDA-COG hopes to integrate freight into its next LRTP update. It will accomplish this primarily by soliciting input from the FAC through freight discussion topics. In return, the agency hopes to provide freight data and maps to the members. The freight emphases in the LRTP will be on economic development, safety, and congestion. Economic development is an important part of the agency's mission because the ARC areas are losing firms to outsourcing and downsizing. SEDA-COG has "to be competitive to retain these companies."

Since SEDA-COG also performs a TIP, it currently is in the process of identifying all freight-related projects within the program. A good portion of the improvements are truck-related. Staff has developed draft criteria that will be used in analyzing candidate projects. FHWA and other federally available resources provide some analysis methods, such as benefit-cost analyses for freight projects. SEDA-COG also considers the projects included within its member MPOs' TIPs.

Developing Freight-Specific Initiatives

A program implemented by SEDA-COG along with the Federal Railroad Administration was a 1-800 emergency notification system at railroad grade crossings. Each crossing has a phone number and identification number so that problems such as signal malfunctions, rough surfaces, or physical obstructions can be reported. Instead of calling local responders (911), the phone number leads to the Clinton County emergency management system, which tracks reports and contacts individuals responsible for managing responses to incidents at the specific grade crossings. The success of the program, unique to the SEDA-COG region and a few parts of Texas, is strong enough that Pennsylvania is considering implementing it statewide.

ARC maintains a Local Access Road funding program to improve roadway access for industries that benefit the economy of the region. Every year, SEDA-COG does about two such projects by building access roads into industrial facilities. As long as the facility or applicant can prove that the access improvement will increase employment or keep the company from being forced to leave the region, then it qualifies for consideration. Generally, these projects are selected based on their expected economic benefits to the region.

SEDA-COG is also collaborating with Lycoming County's MPO (Williamsport) on development of a multimodal freight transfer center. The study currently under way will determine whether expenditures for such a facility are "worthwhile."

Other freight-related initiatives include coordinating an intermodal freight project funded partially by CMAQ; planning a North Central Pennsylvania Rail Freight Summit; designing a logo and slogan for their FAC; and conducting workshops on freight planning and available resources.

Use of Freight Data and Analytical Tools

Another program is a CFS of hazardous materials throughout the region. SEDA-COG already has completed a couple of hazmat surveys, so it "has a handle of what's going through by rail." This is helped by the fact that counties must perform a hazmat survey every 5 years.

The Williamsport MPO has selected a consultant to provide freight data. SEDA-COG will be providing oversight to ensure a high quality of data. The study will focus on trucking information, data for which have been difficult to access. They are hoping to get good modal split data.

SEDA-COG has plans to survey the freight transportation industry in the region to compile data on commodity flows, discover impediments to efficient freight movement, and request

project ideas. These data will support the travel demand model currently being developed for the region. As part of the model development, an inventory of all the employers in the region will be developed, which will help staff identify truck volumes. In addition, the Commonwealth is developing a new freight model as part of its LRP that SEDA-COG hopes will provide some regional opportunities.

Development of Partnerships

In the future, SEDA-COG plans excursions and other site visits for its FAC. In fact, in the near future, the group will travel on the JRA's Nittany and Bald Eagle Line to visit some of the rail customers along the track. Such functions help to build relationships among the freight community and to establish the MPO/RPO as the coordinator of freight activities and an advocate of freight interests.

PennDOT supports SEDA-COG's activities in a variety of ways, primarily on the rail side. The state's Rail Freight Assistance Program (RFAP) allocates \$8 million statewide for the construction, maintenance, repair, and rehabilitation of rail lines, rail sidings, and grade crossings. SEDA-COG also cooperates with the highway districts on the grade crossings program and other projects. The state's Rail Freight Properties Directory catalogs underutilized or vacant rail freight properties. The Aviation Bureau supplies data to the SEDA-COG. FHWA Section 130 (grade crossing improvement program) also contributes to rail freight improvements, and SEDA-COG often attempts to get earmarks through the state appropriations process.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

LDDs are unique to the ARC. There are 72 of them covering 410 counties in 13 states from Alabama to New York. The "regionalization" of freight planning for small MPOs such as those within SEDA-COG allows the freight effort to capture "economies of scale." Pooled resources, such as the membership of the FAC and state and federal program funds for improvements, allow the region to promote itself more effectively and to consider freight in planning activities more actively.

Another aspect of SEDA-COG's planning that is somewhat unique is its heritage as an economic development agency. As a result of that heritage, a lot of the planning efforts maintain an underlying emphasis on the value of economic development. Many of the transportation project selection criteria are based on economic benefits. Projects identified by SEDA-COG and regional partners often are done because of perceived economic impacts. This seems to be a more pronounced consideration in SEDA-COG than in other MPOs. As it relates to freight planning, it absolutely makes sense that the role of planners at a regional level should be to emphasize how their efforts can help with economic development. Likewise, it makes sense that economic development as a criterion in the planning process should take a prominent position.

FAC Membership

The following is a list of SEDA-COG's FAC members' affiliations:

Anthracite Industries	PennDOT Bureau of Aviation
Boyd Station, LLC	PennDOT Bureau of Rail Freight, Ports, and
Canadian Pacific	Waterways
Centre County MPO	PennDOT District 2-0
Conagra	PennDOT District 3-0
Construction Specialties	PennPORTS
Con-Way Central Express	Pennsylvania Motor Truck Association
FedEx	S&L Services, Inc.
FHWA	SEDA-COG
Graymont	SEDA-COG JRA
G. O. Hawbaker	Staiman Recycling Corporation
Jersey Shore Steel	Standard Steel
Koppers, Inc.	TCRPC–Harrisburg Area MPO
Lisa Express, Inc.	University Park Airport
Milton Area Industrial Development	Ward Trucking
Association	Watsonstown Trucking
Milton Transportation, Inc.	Williamsport Area MPO (Lycoming County)
Moran Industries	Williamsport Regional Airport
Norfolk Southern	Yellow Transportation
North Shore Railroad Company	
Northern Tier Regional Planning and	
Development Commission	

Small/Medium MPO Case Study

Syracuse Metropolitan Transportation Council Syracuse, New York

MPO Overview

The Syracuse Metropolitan Transportation Council (SMTC) is the designated MPO for the Syracuse Metropolitan Statistical Area (MSA). As of the 2000 Census, the MSA had a total population of 732,117. The MSA is centered on the City of Syracuse and surrounding Onondaga County with a population of 458,336, but includes three other counties: Cayuga, Madison, and Oswego. The urbanized portion of the MSA that is the focus of SMTC planning falls within Onondaga County and covers 804 square miles.

As of May 2004, the Syracuse MSA had over 350,000 payroll jobs based on the State of New York Labor Department employer survey. Manufacturing, wholesale trade, transportation, and warehousing continue to play an important role in the Syracuse economy. More than 10.5 percent of all payroll jobs were in manufacturing, 4.6 percent in wholesale trade, and 3 percent in transportation and warehousing. These sectors are relevant to freight planning because they are directly linked to freight service and flows.

The SMTC planning area serves as a crossroad for freight activity on the interstate system and on rail. Syracuse sits at the junction of Interstate 81, a major north-south freight corridor that extends from the Southeast United States to Canada, and Interstate 90, a major east-west corridor that connects the Midwest and Ontario to the Northeast. A tremendous amount of international trade is moved by truck from Canada, across the border at Buffalo/Niagara Falls to the Greater New York Region and Boston via Interstate 90 (it should be noted however, that Syracuse lies more than 100 miles away from the nearest international border crossing). In addition to the highway system, Onondaga County is served by one Class I freight railroad (CSX Transportation), one Class II freight railroad (the New York, Susquehanna and Western), and one Class III railroad (the Finger Lakes Railway). The CSXT Chicago Main Line runs east-west through Onondaga County connecting Chicago and points in the Midwest with New York and Boston. Onondaga County is also the location for one of New York State's largest rail intermodal terminals. CSXT's Dewitt Yard handles 70,000 lifts per year (200 per day).

Incorporating Freight into Transportation Planning Activities

Freight planning has been an ongoing part of the MPO's planning activities since 1993. In that year, the Director of the MPO expanded the scope of the MPO's planning program to include rail and truck issues. An intermodal planner position also was created and filled at that time to address this area. Freight planning continues to be supported by the current MPO Director. The catalysts for the emphasis on freight included the following:

- The MPO management and staff recognized that freight was an important issue area for Onondaga County because of its function as a freight traffic crossroads and because of the importance of freight to the local economy;
- The state DOT is engaged in statewide and regional freight planning and provides technical support through the DOT regional offices; and
- The federal ISTEA planning requirements also served as a catalyst for freight planning activity at the state and regional level.

Freight planning activities have been incorporated in the overall MPO transportation planning activities in a number of ways. First, a discussion of freight (truck, rail, water, and air cargo) is included in the MPO's 2004 LRTP update as well as in prior updates. The most substantial discussion of freight conditions and issues is presented in the plan's Chapter 5, "Changing Transportation Needs and Impacts."

Freight planning activities are also explicitly described in the MPO's UPWP. The MPO produced a special 2002–2003 UPWP Summary Report on Rail/Truck/Transit Planning. This report provides a status of all MPO planning efforts that are underway in these areas. The most substantial work on freight is at the project level. These projects will be described in the next section.

To date, the MPO has not programmed specific freight projects in the TIP, and there are no freight-specific evaluation criteria. For the highway and road projects, criteria such as congestion management or pavement quality can indirectly address freight issues.

The MPO has a staff of 10, including the Director, communications, and administrative personnel. The position of Senior Intermodal Planner focuses on a range of passenger and freight intermodal issues. This position serves as the lead for MPO freight activities with 33 percent of available time allocated to freight. Other technical staff may provide a project-specific support. Consultant resources are generally not used to support this program area other than on specific initiatives which may cover a range of transportation issues. Given the size of the MPO, the staff has been able to maintain an ongoing freight program with periodic deliverables.

Developing Freight-Specific Initiatives

The MPO has undertaken a number of freight initiatives since the early 1990s. This project and program activity includes the following:

- Truck route study for the City of Syracuse (2000);
- Central New York Rail Corridor Inventory (1996 and 2003);
- Highway-rail grade crossing inventory (2001);
- Taft Road-Northern Boulevard Study (multimodal 2001);
- Skaneateles Traffic Study (multimodal with a truck routing component 2000);
- I-481 Corridor Study (multimodal 2004);
- Examination of access and operational issues of the CSX intermodal terminal in Syracuse, which is an outgrowth of the 1997 Conrail/CSX Intermodal Terminal Access Study;
- Syracuse Intermodal Roundtable (1994–1998) that comprised shippers, manufacturers, wholesalers, trucking companies, and rail service providers. This roundtable provided a forum for sharing information and addressing freight issues;
- Transportation Club of Central New York (an independent association of shippers from Central New York State focused on freight issues in a larger geographic territory than the MPO) (mid 1990s); and
- Statewide MPO staff training on how to use state and regional freight data provided by Reebie Associates. The MPO director served as the project manager for this effort.

The general strategy is to have one or more manageable freight initiatives underway at any given time.

The NYSDOT provides ongoing technical support on a variety of freight, rail, and project programming issues. The MPO staff generally interacts with the DOT's Region 3 office.

Use of Freight Data and Analytical Tools

The MPO uses the Reebie Associates freight data purchased by the state. The challenge with this data is that they do not fully address the issues encountered at the local level. The nature of the data is better suited for statewide and interregional freight movements. The MPO supplements the Reebie data with local data. The MPO conducted a regional survey of truck and rail terminals in 1996 as part of the Syracuse Intermodal Roundtable. This survey will be updated by the MPO in a few years. The MPO staff also maintains ongoing contacts with a range of freight interests in the region to inform project-specific initiatives such as the I-481 Corridor Study. Qualitative information provided by regional freight interests is very important to the program.

The MPO does not do freight traffic forecasting to inform its planning and programming efforts. It does not have the information or the staff resources at present to do this. Freight forecasting may be a possibility in the future.

Development of Partnerships

A key factor that has helped the MPO address freight issues is the establishment and ongoing maintenance of contacts with the private sector (transportation providers such as CSXT and trucking companies, shippers, and manufacturers) and with the NYSDOT.

For a medium-sized MPO, contacts and partnerships with a broad array of public and private sector interests are essential to having a freight program. Small- and medium-sized MPOs don't have the depth and breadth of staff to have positions dedicated to freight unlike MPOs in Metropolitan New York or Philadelphia.

The 1991 federal transportation legislation, ISTEA, had a freight management systems planning requirement which spurred interest and staff capacity both at the state and MPO level. The SMTC draws on a network of freight staff in other MPOs and in the state DOT. The MPO representing Buffalo and Niagara Falls is very engaged in freight issues because it is a major international freight gateway between the Toronto Region and markets in the Northeast. As such it has skills and knowledge that SMTC can use.

On a larger geographic scale, there are a series of initiatives and partnerships to address goods movement. There is an ongoing partnership between the State of New York and the Province of Ontario to address freight movement and border crossing issues referred to as the Ontario/New York Bi-Regional Transportation Strategy Working Group. There also is an Interstate 87 Corridor Initiative involving the New York region, Albany, and the Province of Quebec.

Ongoing contacts and relationships with a wide variety of private sector freight interests also constitute a form of partnership. The rail companies, trucking companies, shippers, and manufacturers possess tremendous knowledge of their industry that cannot be replicated. The creation of the Syracuse Intermodal Roundtable to share information and address issues was one form of partnership. The Roundtable met regularly over a 5-year period. The participants then determined that regular, formal meetings were no longer necessary. The MPO now maintains the contacts and relationships gained through the roundtable with frequent communications, but on an as-needed basis.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

Small- and medium-sized MPOs are going to be constrained by financial resources and limited staffing. As such, a key recommendation is not to take on projects or programs in freight that are beyond the MPO's capability to deliver. At SMTC, the staff takes on one or two freight project initiatives at a time and sees them through to completion before moving on to others. For example, one year the staff may focus on a rail-highway grade crossings study that may be followed in another year by a rail corridor inventory; a survey of the freight community may be done in another year.

The second lesson learned at SMTC is that developing working relationships with the private sector freight community is essential. These interests do not have a lot of time for meetings or the planning process. It is up to the MPO staff to reach out to them and to try to develop an understanding of what they do and what their needs are. The knowledge base that resides in the local freight community is invaluable.

The third lesson is that the MPO staff needs to learn as much as it can from the private sector, from staff at other MPOs, and from DOT staff to be effective in this area. At a certain point, the

MPO staff can then serve as a resource for local communities and other interests grappling with freight issues.

Finally, small- and medium-sized MPOs would really benefit from guidance on freight planning. The needs of small- and medium-sized MPOs are very different from the large MPOs and they have much more limited resources (it should be recognized that 90 percent of all MPOs fall into the small and medium category). Further, they are faced with freight issues to some degree. Freight movement is widely dispersed across the country and significant impacts can be found in communities of all scales. Having clear guidance on freight planning from the federal level would be beneficial.

Small/Medium MPO Case Study

Toledo Metropolitan Area Council of Governments Toledo, Ohio

MPO Overview

The Toledo Metropolitan Area Council of Governments (TMACOG) handles transportation planning for a bistate area, including three counties in Ohio (Lucas, Wood, and Ottawa) and one in Michigan (Monroe).

The Toledo area has always had a significant amount of freight movement, because it is located along major highway corridors, is a large freight rail hub for east-west movements, is a leading Great Lakes port, and is located adjacent to the Detroit metro region, a huge generator of domestic and international freight. As the hub for BAX Global, Toledo Express Airport ranks among the busiest air cargo hubs in the country. Toledo also is situated at the center of one of the most manufacturing-intensive parts of the United States, stretching from the Chicago-Milwaukee area in the west to the Cleveland-Pittsburgh area in the east. The greater region is home to the U.S. auto industry (and a host of suppliers), steelmakers, and food producers. Today, the Toledo MSA has a population of about 620,000 people and is growing more slowly than the United States or the State of Ohio. Jobs are concentrated in manufacturing related to auto assembly (Chrysler has a plant in Toledo) and automotive parts.

Incorporating Freight into Transportation Planning Activities

FAC. Freight has been incorporated into TMACOG's transportation planning activities since 1984. In 1984, the TMACOG formed a Railroad Task Force to address some of the rail grade crossing issues in the region and to provide a forum to discuss the local impacts of rail operations and consolidations (at the time, many of the region's railroads were restructuring or consolidating their operations). The Railroad Task Force consisted of both public and private sector freight stakeholders and was designed to be a "four-legged stool," with members representing

- Private sector shippers and carriers,
- Public sector planning agencies,
- Local governments and communities, and
- Economic development agencies.

It is important to note that economic development agencies have long been a key partner of the TMACOG. In fact, economic development to some degree drives transportation planning decisions in the region (i.e., if a transportation improvement can be shown to create jobs, it is a go).

The Railroad Task Force provided input and advice to the MPO during development of the 2010 LRTP (completed in 1989), which included a freight rail element and in the 2025 LRTP update (completed in 1996), which included air and rail freight elements.

In 1998, the Railroad Task Force was reorganized as one of several standing committees to the Transportation Council of the MPOs. Unlike many MPOs, which have separate technical advisory and policy committees, the TMACOG's activities are guided by a Transportation Council which consists of elected officials, county commissioners, and citizen representatives. This council receives input from six standing committees: TIP, LRTP, Rail Passenger, Freight, Bike/Ped, and Data/Modeling. The freight committee, whose membership also was expanded to include other modal representatives in addition to rail, meets approximately four times per year and the group's steering committee meets more frequently (to set agendas, etc.). This set up minimizes the time requirements of the full group and ensures that their meetings are focused and useful.

Project Prioritization. The region's economic development agencies have long been a partner of the TMACOG in its transportation planning activities. While the MPO does not have a

specific prioritization process or quantifiable criteria for projects to be included in the TIP, the MPO does require project sponsors to make statements about the project's potential impact on the transportation system, economic development, and community livability. Potential transportation improvement projects that provide an economic development benefit (creating jobs, improving efficiency, etc.) are looked on favorably. MPOs should not look at "freight projects" versus "passenger projects." Rather, MPOs should understand their transportation and economic development issues first and include projects in their TIP that address those issues.

Developing Freight-Specific Initiatives

Rail Corridor Study. One of the key regional issues identified by both the Railroad Task Force and its successor, the freight committee, was delays caused by at-grade rail crossings in the region. The MPO approved a Railroad Corridor Study to identify where grade separations were most needed. This study recommended grade separations, crossing closures and other improvements to major rail corridors in the area to improve safety and reduce congestion at crossings. The study addressed six specific corridors:

- *Corridor 1*, CSX east of the Maumee River;
- *Corridor 2*, Conrail/Norfolk Southern, western Toledo to Swanton;
- *Corridor 3*, CSX through Perrysburg;
- *Corridor 4*, Norfolk Southern in Maumee area;
- *Corridor 5*, Norfolk Southern through City of Oregon; and
- *Corridor 6*, (former) Conrail east of the Maumee River.

The TMACOG took a rather unique approach to this study by forming six individual "study teams," one for each of the corridors. These study teams consisted of railroads, shippers and local businesses, school district reps, and other neighborhood groups. Each of the study teams met individually to address the issues and needs of their specific corridor. This approach ensured that all stakeholders were represented and resulted in a high degree of cooperation and coordination among the various interests represented.

Development of Partnerships

Freight Listening Sessions. The TMACOG has been very successful in engaging the private sector freight community in the planning process through the Railroad Task Force and its successor, the freight committee. The TMACOG also has developed a continuing process that allows it to identify freight transportation issues of the region and provide that input to the freight committee through freight transportation listening sessions. These sessions are programmed annually into the MPO's UPWP. Typically, the MPO tries to conduct four to five sessions per year (about one per quarter). The MPO has one staff member that will contact a manufacturer or carrier and set up an in-person interview. The interviews focus on identifying freight-specific issues that affect the operations of the interviewee. Interviewees often cite quick fixes, such as inadequate left turn signals, poorly maintained access roads and so forth. The interviews are summarized and provided to the freight committee for information and action. The MPO has successfully identified several projects as a result of these sessions, including the rehabilitation of an access road to a major chemical manufacturer on the outskirts of town. It is unlikely that this improvement would have been included in the TIP had it not been identified during these sessions.

Other Partnerships. The MPO's Railroad Corridor Study, its freight committee, and the regular completion of freight listening sessions are good examples of ways to develop partnerships with the private sector freight community and incorporate freight issues into the metropolitan transportation planning process. The TMACOG has also worked to develop partnerships with other MPOs in the region, most notably the Southeastern Michigan Council of Governments (SEMCOG), the MPO for the nearby Detroit region. The economies and transportation systems of the TMACOG and SEMCOG are closely linked, essentially components of a single regional

system. While SEMCOG has only recently begun to do active freight planning for the region, the technical planning staff of both MPOs meet twice a year to discuss issues and coordinate planning efforts. In addition, the TMACOG's Transportation Council and SEMCOG's Technical Advisory Committee meet jointly twice a year. This kind of interregional coordination allows both MPOs to take a more regional view of transportation and helps them better understand the impacts of one subregion's activities on the other. The TMACOG is also working with its counterparts at SEMCOG and Michigan DOT to coordinate regional ITS architecture development to ensure compatibility of ITS deployments.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

- **Do not create an “us versus them” mentality.** TMACOG stressed that it is important to look at regional transportation issues (whether they be freight- or passenger-related) and their impacts on the region (whether they be mobility, safety, or efficiency-related, regardless of freight or passenger). It is critical not to have a mindset of “freight versus passenger.” Rather, the MPO should be identifying issues and coming up with solutions for all the region's transportation issues and not pit constituencies against one another.
- **The MPO is the best place to “localize” freight transportation issues.** Freight movements in Toledo and in many other metropolitan areas are increasingly national and global in scope. However, these movements have clear local impacts, in terms of air quality, grade crossing delays, congestion, and overall community livability. The MPO is the single best place for all freight stakeholders (industry, government, community) to gather, identify issues, and develop consensus-based solutions.
- **Know your area.** It is crucial to understand your area's economic structure (leading industries, economic drivers) and its transportation issues. There are several ways to further your understanding of your region. The first is by talking to the freight community (either by listening sessions or some other way). Another effective method (currently being employed by the TMACOG) is to develop a freight transportation inventory of either physical transportation facilities or freight services in the area. The TMACOG did this in 1994 and is updating it now. The inventory (called the Freight Transportation Access Directory) lists common carriers, rail carriers, freight brokers, freight forwarders, and other freight service providers. The TMACOG believes that this is an excellent way to identify potential stakeholders and understand the types of freight services available in an area.
- **Stick with it!** Engaging the private sector is pivotal to the success of a transportation planning program and requires commitment and perseverance. TMACOG staff encourages MPOs to keep trying to engage the private sector even though it will often be frustrating. Over time, successful relationships will be formed.
- **Designation of NHS Intermodal Connectors provides an opportunity to start a freight planning program.** Many of the issues identified during the TMACOG's freight listening sessions involve poorly maintained or inadequate intermodal connectors. Federal aid is available for designated NHS intermodal connectors.

Small/Medium MPO Case Study

Tri-County Regional Planning Commission Harrisburg, Pennsylvania

MPO Overview

Part of the Tri-County Regional Planning Commission, the Harrisburg Area Transportation Study (HATS) addresses transportation concerns for Cumberland, Dauphin, and Perry counties in South Central Pennsylvania. This area has become a transportation hub, largely due to the intersections of the Pennsylvania Turnpike (I-76), I-81, and I-83. Norfolk Southern Railroad also has invested heavily in the area and considers it their North Atlantic Hub. The result has been an explosive growth in the number of warehouses and distribution centers in the region, especially around the intersection of the Pennsylvania Turnpike and I-81 in Carlisle.

Incorporating Freight into the Transportation Planning Process

HATS has four staff members involved in transportation planning, including one that is designated as the goods movement planner; however, these are not full-time transportation positions, because each has to divide his/her time among several disciplines, such as zoning and other regional issues. HATS also has a Technical and Coordinating Committee that provides guidance. Ex Officio members of this committee include Norfolk Southern Railroad, the Susquehanna Area Regional Airport Authority, and Amtrak.

The HATS LRTP was just updated last year. It included a freight section, which focused on truck and rail traffic and existing conditions. It did not provide much in the way of planning or future recommendations.

The TIP is focused on highway and transit issues. Projects are ranked using criteria, including safety, congestion, and air quality. The TIP is more of a qualitative process and not based on a detailed benefit-cost analysis. Most TIP projects are submitted by PennDOT and the local municipalities. These projects are almost exclusively driven by passenger transportation needs.

There are some projects on the HATS TIP that benefit freight transportation, but they are not strictly freight. MPO staff believes that the current TIP process is not conducive to freight needs and would like to attract more private sector involvement into the identification of TIP projects.

MPO staff mentioned a freight rail project, the Lemoyne Connector, that was in the region but not on the TIP. This led to an interesting discussion about how the private sector would attempt to initiate freight projects. Staff felt that the current process encouraged private companies to approach PennDOT and the local municipalities for funding and approval. The MPO would only be contacted as a courtesy. The Lemoyne Connector was approved and funded in just such a manner.

Developing Freight-Specific Initiatives

HATS was one of the participants of the Wilmington-Harrisburg Freight Study. This effort, led by the Lancaster County Planning Commission, combined Federal Borders and Corridors with local funding to examine the movement of freight along a corridor connecting the Port of Wilmington, Delaware, and Harrisburg with a goal of diverting some of this heavy truck traffic from local roads.

HATS has initiated its own freight study, the South Central Pennsylvania Goods Movement Study, to build on the Wilmington-Harrisburg effort, to better manage the growth of freight traffic and warehouse development, and to better address the high number of accidents on the local interstates involving heavy trucks. PennDOT is providing most of the funding with a local match in the form of in-kind services.

Development of Partnerships

One of the goals of the South Central Goods Movement Study is to assemble a freight task force that can be perpetuated. This task force would be modeled after the Goods Movement Task Force at the DVRPC. The DVRPC Goods Movement Task Force meets quarterly and typically draws 60 to 70 attendees representing a broad spectrum of freight concerns in the greater Philadelphia area (trucking companies, Class I railroads, short-lines, ports, air freight, PennDOT, NJ DOT, DelDOT, MPOs, shippers, concerned citizens, consultants, etc.). DVRPC solicits freight projects from task force members for potential inclusion in the TIP.

Like the DVRPC example, HATS is attempting to build a multijurisdictional, public-private task force of freight stakeholders that will identify freight projects for possible inclusion in future TIPs. Members of this task force would include

- Norfolk Southern Railroad;
- Trucking Companies;
- PennDOT;
- Amtrak;
- Susquehanna Area Regional Airport Authority;
- Pennsylvania Motor Truck Association; and
- Shippers.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

MPO staff believes that MPO freight planning is moving in the right direction. The strategy at HATS is to engage the private sector through development of a Goods Movement Task Force, modeled after the successful program at DVRPC.

MPO staff also believes it is important to get a sense of what is occurring with freight in a region. This requires the MPO to move beyond its traditional methods because understanding freight movement requires looking outside the boundaries of the MPO region. This is especially true for HATS, which has to plan for warehouses and distribution centers that act as intermediary points for goods originating and terminating outside its region.

Finally MPO staff believes that current resources are just too limited to give freight the attention it deserves. There is definitely an interest in freight issues, but there is a lack of resources and expertise at the MPO level to sufficiently address them in the transportation planning process.

Small/Medium MPO Case Study

Whatcom Council of Governments Bellingham, Washington

MPO Overview

Whatcom Council of Governments is the MPO for Whatcom County in Washington. The county is the northernmost county in Western Washington and lies at the border with Canada. According to the 2000 Census, the population of Whatcom County is 166,814, which is a 23.4 percent increase over the 1990 population. The largest city in Whatcom County is Bellingham, a small city of approximately 67,000 residents. Aside from Bellingham, Whatcom County is primarily a rural county that includes major recreation sites in the Mt. Baker area. In 1990, approximately 59 percent of the population lived in urban areas. By 2000, most of the population growth had occurred in the urban areas (67.7 percent of the population lived in urban areas).

Employment in Whatcom County grew by 31 percent between 1990 and 2000 with the largest growth occurring in the trade and service sectors. Manufacturing represents 12 percent of total employment. Agricultural employment in the county actually dropped between 1990 and 2000.

Whatcom County's economy and transportation picture is most strongly influenced by its position within the I-5/Highway 99 corridor between the Puget Sound (Seattle) region and the Lower Mainland of British Columbia (Vancouver). Whatcom COG's principal freight issues arise as a result of its location as a border community serving the active trade flows between British Columbia and Washington. There are four major border crossing facilities in Whatcom County, three of which—Pacific Highway (Blaine), Lynden, and Sumas—are commercial crossings. Bellingham also contains a small seaport facility and a small commercial airport. There is a free trade zone at the Bellingham Airport.

Freight Transportation Issues—Cross Border Transportation

The most significant freight-related transportation issues stem from the border crossings. These have both an economic and transportation component. There is a community of stakeholders whose livelihood depends on the border and this group of stakeholders is very focused on making the border work. A substantial number of these stakeholders are focused on passenger transportation issues that relate to the economic linkage between the Whatcom County economy and that of the Lower Mainland. Whatcom County includes significant recreation and shopping destinations for Canadians traveling to the United States and there are a small but significant number of workers who commute across the border. But Whatcom County also is home to a number of businesses, including customs brokerages, cross border motor carriers, trade-oriented businesses, and various other trade support activities that are focused on freight movements across the border. The region's border crossings have experienced significant trade growth and economic integration stemming first from the bilateral trade agreements between the United States and Canada and subsequently from NAFTA. Communities in the more rural parts of the state also look to the growth in trade-related traffic as a source of potential economic development. The hope is that by investing in freight support infrastructure it may be possible to grow trade-related service businesses in these parts of the county.

The growth in trade-related truck traffic also has significant transportation implications for Whatcom County aside from the economic issues. Between 1991 and 2000, truck traffic through the Cascade Gateway almost doubled and grew from 3.7 percent of total traffic crossing the border to 11.5 percent of total traffic. This has had an impact on capacity needs on the rural roadways connecting to the border, traffic operations in the vicinity of the border crossings, and pavement maintenance issues throughout the corridor. Improving the all-weather performance

of the roadway system for trucking is a major transportation priority in Whatcom County and represents a significant cost element.

Other Freight Issues

While cross border issues have been the most significant freight transportation issues facing Whatcom COG, there are other freight-oriented issues. These include the following:

- **Economic development.** This would include using the cross border and through freight traffic as sources of potential economic development for the region as well as freight issues associated with natural resource development, key issues in the predominantly rural county.
- **Weight limits and all-weather roads.** The fact that the Canadian truck weight limits are higher than those in the United States has focused attention on the issue of weight limits. In addition, because of the impact of winter weather on road conditions, especially in high truck volume corridors, road maintenance and condition are factors of concern.

Incorporating Freight into Transportation Planning Activities

Through the 2001 LRTP development, Whatcom COG did not take a strong leadership position on freight issues aside from the International Mobility and Trade Corridor (IMTC) project (see the Development of Partnerships subsection in this module for more detail on the IMTC and how it was developed). In 2001, the LRTP did not have a freight element. Freight was dealt with to a minor extent in the MPO policies. This included policies to facilitate freight transportation from an economic perspective. For the most part, the LRTP policies echo policies in the local comprehensive plans, emphasizing things such as improvement of all-weather road conditions. The City of Bellingham has focused much of its transportation planning on connectivity among neighborhoods, spending little time or effort specifically on freight. The county has a slightly higher level of interest in freight issues as a source of economic development. The county has set aside land for an intermodal freight site but there has been no action on this yet. There also have been proposals for economic development of industrial sites along the waterfront (for deep water access) as well as a proposal for a cross-county highway corridor that would bring Canadian grain down to the United States for shipment to China. The latter idea does not seem to have materialized.

The MPO believes that in the next LRTP update there should be a freight chapter, but it has not developed one yet. The MPO board makeup has changed and the new board seems more interested in freight issues. There may be an opportunity to use the IMTC experience as a springboard for a more comprehensive look at freight issues in the region. The hope is that the MPO can develop freight policy that can guide the local comprehensive plans, not the other way around.

Developing Freight-Specific Initiatives

Whatcom COG's most notable achievements in the area of freight planning have come about as a result of its position as a border community. These activities have integrated both passenger and freight border issues in a comprehensive program. In the 1990s, Whatcom COG took a lead role in helping to form a binational, multiagency, public-private coalition called the IMTC to deal with trade and transportation issues in the Cascade Gateway region. The IMTC has been a model of an effective multijurisdictional, public-private partnership that has undertaken several projects with at least some freight focus:

- **Cross Border Travel Study.** This study recognized that the available data on both freight and passenger movements across the border were incomplete and did not provide enough detail to allow for effective transportation planning. The major focus of this study was a roadside intercept survey of both passenger vehicles and trucks at the four border crossing facilities. The intercept surveys were conducted over several days (both weekend and weekday), in both

directions and at each facility, in the busy summer season, and in a more average autumn period. Information collected for trucks included the type of truck, the commodity carried, the origin and destination, the type of facility at origin and destination, and the reason for using that specific crossing. In addition, vehicle classification counts were conducted at each survey location. The data were analyzed to determine general origin-destination patterns and to determine the potential for various infrastructure and operational strategies. The study also included a series of logistics process surveys of shippers, carriers, and customs brokers to obtain information on how the logistics process of these companies worked and how border operational characteristics affected logistics decisions.

- **Rail study.** A cross border rail study was conducted that again focused on both passenger and freight issues. The freight element of this study evaluated the potential for modal diversion from trucking to rail through service improvements in the Cascade Gateway corridor. Potential commodities that could be shifted from truck to rail were identified.
- **Installation of FAST approach lanes at Pacific Highway.** To obtain traffic operational benefits from the existence of FAST lanes (preclearance commercial vehicle lanes), the IMTC obtained funding to build separate approach lanes that would provide for flow benefits to the FAST participants.
- **Construction of truck-auto separations at Sumas/Abbotsford.** This keeps trucks and autos completely separated on approach to the border and allows for smoother traffic operational features.
- **Cross Border Short-Sea Shipping Study.** In cooperation with Transport Canada and with additional funding from the U.S. Maritime Administration and the FHWA, the study is being conducted in two phases to evaluate the potential of short-sea shipping to divert cross border freight movements from truck to waterborne movements.

Other projects that impacted border freight operations included the construction of truck staging areas at Pacific Highway and Sumas, which will streamline truck processing, and the development of a cross border model, which can be used to evaluate alternative improvement projects.

Use of Freight Data and Analytical Tools

Whatcom COG currently is engaged in a project to develop travel demand modeling capability. The COG had a crude travel demand model without a truck or freight component that fell into disuse. The MPO had become interested in developing a forecasting capability to address border traffic issues and was able to develop interest in the idea of cross border travel demand modeling amongst a group of border region stakeholders (the following subsection describes the IMTC). This created the opportunity to pursue federal funding from both the U.S. and Canadian governments and the Washington State DOT (WSDOT). To justify the expenditure of local funds needed to match the federal grant, Whatcom COG agreed to incorporate within the modeling project the development of a substantial update of its regional Whatcom County model.

The modeling project incorporates three elements: (1) the cross border model, (2) the Whatcom County model, and (3) the border simulation model. The cross border model and the border simulation model include freight elements while the county model does not.

Development of Partnerships

The clearest area of success for Whatcom COG has been the creation and nurturing of the IMTC. This is one of the nation's best examples of a successful multijurisdictional partnership. That it was implemented and nurtured largely through the efforts of a relatively small MPO is a testament to what can be accomplished under the right set of circumstances. The IMTC is a U.S.–Canada coalition of government and business entities that jointly identifies and promotes improvements to mobility and security for the four border crossings between Whatcom County, Washington State, and the Lower Mainland of the Province of British Columbia.

The goals of the IMTC project are to

- Coordinate planning of the Cascade Gateway as a complete transportation and inspection system rather than as individual border crossings;
- Improve traffic data and information for this region; and
- Identify and pursue improvements to infrastructure, operations, and information technology.

The history of the IMTC is an interesting example of how an effective coalition can be created. In the mid-1990s a group of primarily public sector stakeholders had begun to meet to discuss border transportation issues. These were transportation agencies from both sides of the border. In the beginning, there was a sense that traffic across the border was growing rapidly and this was one of the major transportation issues facing the border region. Stakeholders identify themselves with the border and this is a primary driver of many issues in the region. It has also created the basis for continuing efforts at cross-border dialog. Before the IMTC, the transportation agencies seemed to feel intuitively that there was a need for a forum or a place to conduct a dialog about cross-border transportation issues and there were leaders in the various transportation organizations who were ready to champion this idea. But there wasn't really a galvanizing issue around which other stakeholders could be brought together.

Then the U.S. General Services Administration (GSA) came out with a border system plan for developing the facilities at the four regional border crossings. The plan was issued without much consultation with stakeholders. Border stakeholders needed to somehow coordinate their response to the system plan and this provided a catalyst to get the organization going. The Bellingham Chamber of Commerce already had a regular "border business luncheon" and the transportation agencies reached out to this group as business representatives and the IMTC began. The transportation agencies already had begun working on terms of reference for a coalition so this served as a good starting point.

There were several other factors that helped push the creation of the IMTC. First, a private non-profit policy research institute in the Seattle region, the Discovery Institute, had put together a program called the Cascadia Project to promote public and business policies that would encourage trade and economic development throughout the Western British Columbia and Pacific Northwest region. The Cascadia Project became interested in forming a group like the IMTC and used its political and business connections to help support the nascent coalition building.

At the same time, Congress was moving toward the reauthorization of the surface transportation bill that became TEA-21 and there was talk of a Borders and Corridors program. Moving ahead with the creation of the IMTC positioned the region to move quickly and effectively to compete for funds available through this program. The original program and grant requirements from FHWA also helped focus the coalition on information gathering as a key first step in establishing both the rationale and priorities of programs and projects. Before the availability of the federal grant money, the COG was able to convince the WSDOT to provide small grants of seed money to get the ball rolling. These funds allowed Whatcom COG to hire a dedicated staff person to coordinate the IMTC activities. Staff support was critical to preparing information for the early meetings that kept them focused and allowed all of the key organizational work to be conducted in anticipation of the more significant federal grant money that came later.

How the IMTC Works. The IMTC has a three-tiered organizational structure:

- The **Steering Committee** consists of approximately 40 agencies who meet monthly and make suggestions to the Core Group. These agencies include organizations from all levels of government from both countries, transportation and inspection agencies, industry organizations, and private companies.

- The **Core Group** consists of more than 60 agencies (including the Steering Committee) and meets quarterly, serving as the decision-making body of the IMTC.
- The **General Assembly** consists of the Core Group plus general border stakeholders—businesses, organizations, and agencies that depend on a functioning border-crossing system. More than 200 participants meet semiannually to provide feedback and gain information on evolving border policies and operations.

Success Factors and Recommendations for Other Small- and Medium-Sized MPOs

There are a number of factors that have been critical to the success of the IMTC and that should be considered when using it as a model for other small- and medium-sized MPOs:

- **A well-defined group of stakeholders with a clear set of common interests.** It was important to discuss the border culture to help stakeholders see that they had a common set of interests. This discussion may also have created a blurry line between freight and passenger transportation stakeholders, which might have made it easier to organize the partnership than it would have been if the focus had been solely on freight issues. Ironically, it may turn out to be easier in small- and medium-sized MPOs to find this commonality of interest and community around freight interests than in larger, more diverse communities.
- **A clear recognition of how freight issues are linked to the economy.** The economic integration at the border was definitely recognized by the border region stakeholders.
- **A catalyzing issue.** While there already were efforts underway to bring the key public stakeholders together at the border, the GSA border system plan created the impetus to bring a variety of other stakeholders to the table to act quickly. There was an issue at stake.
- **A tiered organization that brings decision-makers together at one level and provides a working support group together at the staff level.** The structure of the IMTC includes various levels but ensures that very high-level decision-makers from both the public and private sector have a time and a place to come together. Meeting with peers keeps this group together and ensures that actions are taken as a result of the discussions. But the IMTC also has working subcommittees and groups at the staff level that plan and monitor projects and activities in a collaborative fashion. There is a process for prioritizing project lists and for negotiating the funding participation of all of the partners.
- **No clear single institutional owner.** While Whatcom COG provides all of the staff support for the IMTC, the coalition is not seen as a creation of the COG. Because IMTC's primary purpose is to act as a forum and planning entity, it is important that all participants believe that they have an equal voice in the discussions and that they are free to act within their own jurisdiction as necessary.
- **Dedicated staff.** An important contributor to the success of the IMTC has been the ability of Whatcom COG to provide dedicated staff to the program. This ensures that the information needs of the coalition are attended to and that follow-up actions receive support. Staff support has been possible through funding that comes largely from Federal Borders and Corridors grants and other TEA-21 earmarks. In addition, the IMTC has focused much of its project efforts at developing a good information base for collective planning. The individual implementing agencies can then act as necessary. The Borders and Corridors funds, accompanied by local matches from the various participating agencies, pay for consultant studies to develop this information base.

Large MPO Freight Planning Case Studies

Metropolitan Transportation Commission, Oakland, California

New York Metropolitan Transportation Commission

Delaware Valley Regional Planning Council, Philadelphia

East-West Gateway Coordinating Council, St. Louis

Puget Sound Regional Council, Seattle

Large MPO Case Study

Metropolitan Transportation Commission Oakland, California

Key Lessons: Incorporating freight into the planning process and RTP.

MPO Overview

The Metropolitan Transportation Commission (MTC) is the MPO for the nine-county San Francisco Bay Area (Sonoma, Napa, Solano, Marin, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco). According to estimates by the California Department of Finance, the region's population in 2004 was 7 million. The region is highly urbanized with the three largest cities being San Jose, San Francisco, and Oakland. Despite the efforts of a vibrant Smart Growth program, the region continues to experience outward expansion of population into the Bay Plain region and the Outer Ring suburban community. Economic integration with the Northern San Joaquin Valley is also evident, both in terms of commute shed and regional warehouse and distribution activity. Between 1990 and 2004, regional population grew by 16.9 percent.

According to the Association of Bay Area Governments (ABAG), regional employment was 3.8 million, up 17.1 percent from 1990. The largest percentage growth over the decade was in the construction trades and the government and services sector. Agriculture and wholesale trade employment declined during this period. Between 2000 and 2004, total employment in the region declined, reflecting economic dislocations in the high-technology sectors that dominate Silicon Valley in the South Bay.

The 2004 Regional Goods Movement study provides some perspective on the significance of freight to the regional economy. More than 37 percent of Bay Area economic output is in manufacturing, freight transportation, and warehouse and distribution businesses. Collectively, these goods movement-dependent businesses spend approximately \$6.6 billion on transportation services. The businesses providing these services also play a critical role as generators of jobs and economic activity in their own right. Bay Area goods movement businesses provided at least 5.9 percent of the region's employment in 1997. Since these estimates do not include employment in private warehouses, it is likely that goods movement businesses provide almost twice as much employment as indicated in these figures. In addition, the types of jobs provided are critical at a time when other opportunities in manufacturing are declining.

More than 80 percent of the goods movement in the Bay Area involves trucking in several major corridors: I-880, U.S. 101, I-580, and I-80. Other highway corridors play supporting roles to these major goods movement corridors. The I-880 corridor has the highest volume of truck traffic in the region and among the highest of any highway in the state. Serving the Port of Oakland, Oakland International Airport, and the Oakland Intermodal Gateway Terminal (the Joint Intermodal Terminal) as well as a major concentration of industrial and warehouse land uses, I-880 serves as both an access route for major interregional and international shippers and a primary intraregional goods movement corridor. The I-580 corridor is the primary connection between the Bay Area and the national interstate truck network. A substantial share of Bay Area domestic trade is with Southern California, the San Joaquin Valley, and other West Coast destinations, and most of this trade uses I-580 as a connector. This corridor has the second highest volume of truck traffic in the region, most of it long-haul in nature and involving the heaviest trucks. Increasingly, regional distribution centers have located in the San Joaquin Valley and trucks providing goods to the Bay Area use this corridor for access. I-80 has the third highest truck volume in the region, serving primarily as a connector to the transcontinental truck network. The U.S. 101 corridor acts as a gateway corridor in the southern end of the region with modest truck volume between Salinas and San Jose. Truck volume increases substantially from San Jose to San Francisco, where the corridor serves as a primary access route to San Francisco International Airport and intraregional goods movement.

After trucking, rail carries the next largest fraction of Bay Area goods. The region is served by two Class I carriers, BNSF and UP. Oakland is the center of the Bay Area rail network and the most significant elements are located in the East Bay and along the Suisun Bay network (north and south). Major intermodal terminals are in Richmond and Oakland. Oil refineries and auto terminals along the Suisun Bay network also generate substantial rail traffic. The UP line to Roseville and the BNSF line to Stockton are the two major rail routes in the Bay Area.

While the Bay Area has a number of public port facilities, the largest is the Port of Oakland. Bay Area maritime cargo includes containerized cargo at Oakland and San Francisco; bulk cargoes at San Francisco, Richmond, Redwood City, and Benecia; and crude petroleum products, raw sugar, and bay sand handled at private terminals. Unlike the Ports of Los Angeles and Long Beach, export cargo volumes at Oakland exceed import cargo volumes. Containerized cargo at the Port of Oakland accounts for the largest share of tonnage and value.

There are three major commercial airports in the Bay Area that handle air cargo: San Francisco International Airport (SFO), Metropolitan Oakland International Airport (OAK), and San Jose International Airport (SJC). SFO handles the largest volume of cargo (approximately 50 percent of the regional total) and is the principal airport for international cargo. OAK is the next largest shipper of air cargo and handles a substantial amount of domestic freight. Air cargo is the fastest growing segment of the Bay Area goods movement system. Air cargo volume is forecast to triple between 1998 and 2020 with 125 percent increase in all-cargo flights.

MTC does not have a regional freight model, but it does include trucks in its regional travel demand model. In the 1980s, as part of a study of the I-880 corridor, a consulting firm developed a truck travel demand model based on a survey of truck owners. The data from this study and trip generation data from the Maricopa Association of Governments study (the basis for the Quick Response Freight Manual [QRFM]) were used to develop the truck trip generation component of the regional model, and the QRFM was used for developing friction factors for the truck trip distribution model. The model results have been validated effectively using Caltrans truck counts for state highways in the region.

MTC currently does not have a FAC. It does have an advisory council that includes business and labor representatives who tend to be the most active advocates for goods movement interests in the transportation planning process.

Incorporating Freight into Core Planning Functions

In the early years after the passage of ISTEA, MTC was one of the nationally recognized MPOs dealing with freight issues. A staff member was designated to take leadership on freight issues and the MPO investigated the development of freight performance measures as part of the planning process. An early success on the project side was the development of the Joint Intermodal Terminal to provide improved rail access to the Port of Oakland. In part due to encouragement by Caltrans, MTC also joined many of the other MPOs in California in the formation of a FAC. The FAC continued to meet into the 2000–2001 timeframe when it was abandoned primarily due to lack of participation by the private sector.

Major freight issues in the Bay Area during the 1990s revolved around the Port of Oakland and the I-880 corridor, which has the highest volume of truck traffic in the region. With increasing waterfront development (particularly in the Jack London Square area immediately adjacent to the Port of Oakland), there was growing conflict between port uses and residential and commercial uses. During this period, a number of proposals for use of the recently closed Oakland Army Base included goods movement-oriented uses that would directly support the Port. However, most of these proposals were controversial and none moved to development.

By 2000, MTC's involvement in goods movement planning was beginning to decline. Most of the attention on freight issues in the state seemed focused on Southern California and the MPO

seemed to be losing interest in the issues. However, during the outreach program before the adoption of the 2001 RTP update, several business groups came forward to complain about a lack of attention being given to goods movement issues. There was a sense that the regional transportation investment strategy was not balanced, with little attention paid to goods movement needs and substantial expenditures on transit, bike, and pedestrian projects. MTC committed to taking a more active role in developing a goods movement element of the RTP. Before its 2004 update, MTC had not had a goods movement element in its LRP. MTC began pursuing funding to conduct a regional goods movement study to develop the database needed to assess existing and future conditions and to evaluate strategic investment opportunities. Ultimately, state planning and research (SPR) funding was made available from Caltrans on the recommendation of the Caltrans Goods Movement Office.

At about the same time things began heating up again around the Port of Oakland. Several key issues had emerged that were of interest to the Port and its stakeholders. The first was continuing land-use pressures on port-oriented businesses and other manufacturing operations in West Oakland. A combination of redevelopment activities favoring higher value uses, rising rents and land costs, and community opposition and parking/operational restrictions were forcing many businesses in the area to relocate. The Port and local stakeholders were hoping for some special designations and preservation of these uses as part of a rezoning process that was underway. The Port commissioned its own study of port services location factors to identify the specific types of port-related businesses that needed to be located adjacent to the Port and to take steps to ensure that there was sufficient industrial land preserved for these uses. One plan promoted by local port-oriented businesses would have provided for these uses as part of the Oakland Army Base redevelopment plans. But other interests in the city were hoping for the development of big box retail and other nonport commercial uses.

The Port also was promoting the development of a short-haul rail intermodal service between the Central Valley of California and the Port. The objective was to provide options for central valley shippers, reduce congestion around the Port, and provide for an inland location where port-oriented uses that did not require land immediately adjacent to the Port could locate. The short-haul service has not proven to be a commercially feasible option for the railroads given current levels of congestion and the Port of Oakland was hoping to gain some public support based on the potential public benefits of the project. Caltrans provided some money to study the viability of the concept but there was little interest from local programming agencies (in California, most transportation project programming occurs at the county level). In general, the Port was frustrated by the difficulty it was having getting its access projects selected in the standard programming process. They argued that a regionally significant freight facility such as the Port should receive special consideration at the regional level. When MTC was putting plans together for a regional goods movement study, the Port of Oakland decided this would be a good opportunity to develop policy and project priorities for regionally significant freight programs. The Port was willing to commit funds to the study.

A third partner in the goods movement study was the Economic Development Alliance for Business (EDAB), a nonprofit economic development organization in the East Bay, supported in part by Alameda County. Alameda County is home to the Port of Oakland, the OAK, the Joint Intermodal Terminal, the two freeways with highest truck volumes (I-880 and I-580), and the largest concentration of manufacturing and warehouse space in the region. EDAB members in Alameda County included a number of goods movement-oriented businesses who were faced with the land-use and regulatory pressures described previously. EDAB also was concerned about the flight of manufacturing jobs from the region and the decline in job diversity. Warehouse, trucking, and logistics jobs represent a viable replacement for the lost manufacturing jobs, but the greatest job growth in these sectors is in adjacent San Joaquin County. EDAB had

planned to fund its own industry cluster analysis looking at the economic contributions of goods movement to the East Bay and decided to pool its resources with the regional goods movement study. EDAB also arranged for strong participation by the Bay Area Council, a nonprofit business group in the region and one of the organizations putting pressure on MTC to consider goods movement issues in the RTP. After the study was initiated, the Bay Area Air Quality Management District also agreed to provide funding.

With this team in place, MTC hired a consultant to conduct the regional goods movement study. The objectives of the study included the following:

- Developing a regional goods movement investment strategy for the RTP;
- Characterizing the issues and providing a better understanding of the economic significance of goods movement in the region to better educate decision-makers; and
- Developing a common platform for Bay Area stakeholders to promote during federal reauthorization discussions.

Defining the Issues

A key element of the goods movement study was to define issues that would resonate with stakeholders so that they would stay the course in what is likely to be a long process of bringing goods movement to a higher level of visibility in the regional transportation discussion. The following issues emerged early in the study:

- **Land Use.** A big question that needed to be addressed in the goods movement study was how to deal with the land-use pressures that were driving goods movement business out of the region. The goods movement study was not able to prove that this trend had negative implications for the region but it did provide an opportunity to examine regional land-use priorities and how they affected goods movement. The region has a strong Smart Growth institution that has been promoting higher density residential and commercial uses in the central Bay Area. The goods movement study spawned a discussion about how goods movement fits in this strategy. Higher density in the urban core means increases in the pressure to upgrade existing industrial and warehouse land uses and this will contribute to the geographic dispersion of these businesses. This could lead to more truck VMT, more congestion on key interregional corridors, higher costs of goods delivery to the major population centers, and potentially greater truck emissions. The goods movement study was the first real opportunity to raise the issue concerning the role of industrial land preservation as part of the regional Smart Growth discussions.
- **Access to International Gateways.** At the beginning of the study, a number of stakeholders believed that the trade gateways were responsible for most of the goods movement activity in the region. The goods movement study showed this not to be the case. However, the goods movement study did clarify the importance of the international gateways to the regional economy and identified some of the critical access issues and potential projects.
- **Major Investment Priorities.** Some of the region's stakeholders were concerned that Southern California was attracting all the attention with regard to freight issues. The visibility of the Alameda Corridor and a number of other projects being promoted by Southern California stakeholders had the Bay Area stakeholders concerned that they were fighting an uphill battle to secure state and federal attention. These stakeholders were looking to identify some major projects that could provide a focus for lobbying efforts.

Approach for Incorporating Freight into the Regional Transportation Plan

The regional goods movement study was conducted in two phases. The first phase involved data gathering and reconnaissance. This provided the information necessary to define issues and describe them effectively to stakeholders and decision-makers. The second phase focused on

refining the description of key goods movement issues and developing strategies for dealing with these issues. Ultimately, the focus in the second phase was on how to incorporate results of the goods movement study in the RTP. Because the RTP update was being developed at the same time that the second phase of the goods movement study was being conducted, it provided an important target for the goods movement study and shaped the products and the interactions between the study team, MTC staff, the county congestion management agencies (the programming agencies), MTC advisory committees, and stakeholders.

In the area of project selection, there were several steps in the MTC process. To satisfy federal requirements for a fiscally constrained plan, MTC identifies a set of Tier I projects for which existing funding sources must be identified. MTC suballocates its funding to the county agencies and these agencies submit projects to be included in the RTP. MTC then reviews the submitted projects to ensure that they are consistent with the regional plan objectives and guidelines as established by the commissioners. State law also requires the MPO to conduct performance evaluations of the projects included in the plan to show how they contribute to the regional plan objectives.

The way this process works in practice is that the county congestion management agencies (CMA) submit a list of proposed projects to MTC and MTC evaluates these projects against a set of performance measures. The results of the performance evaluations are then given back to the CMAs to consider as part of their final selection of projects to be incorporated in the fiscally constrained plan (subject to MTC approval). One of the criteria in the performance evaluations was the extent to which the project provided improved access to ports, airports, or intermodal facilities. During the project evaluation process, the goods movement study team sought to broaden the criteria. Proposed projects were evaluated to the extent that they were in a critical goods movement corridor (as defined by the study team during Phase I of the study), the extent to which they address a goods movement problem or issue in the corridor, and a judgment of the extent to which the project might contribute to solving the goods movement problem. Any data that the project proponents provided that could be used to evaluate potential goods movement benefits (such as reduction in truck VMT, reduction in truck delay, etc.) was used in the assessment. At the time that the goods movement study team became involved in the RTP project selection process, the CMAs already had submitted their initial list of candidate projects. In most cases, these projects were identified through a CMA call for projects which was open to public and private agencies. Most of these projects had been submitted to address nongoods movement issues. The goods movement study team reasoned that an incremental step toward getting greater attention paid to goods movement issues would be to identify projects submitted for other reasons and to show how goods movement benefits could be used to raise the priority of a project that had other value. Once the “goods movement beneficial” projects were identified from the CMA lists, the study team met with the CMA directors to discuss the likelihood that these projects would make it into the fiscally constrained plan and to begin to raise the goods movement arguments for these projects. For the most part, this incremental approach was successful in getting the CMAs to think more about goods movement as an integral part of the project selection process. It also helped that two of the East Bay CMA directors had participated in a focus group of public sector officials to discuss goods movement issues.

A second approach used to integrate goods movement into the RTP process was in the development of projects for the Interregional Transportation Improvement Program (ITIP). California state transportation funding, like its federal counterpart, has devolved most project selection and programming activities to lower levels of governments. Regional Transportation Planning Agencies (RTPAs) exist in every county and program state funds. However, a fraction of the state’s transportation project expenditures are taken off the top of the state transportation budget to be programmed by Caltrans for projects that improve interregional mobility. Each MPO or RTPA recommends projects and criteria for inclusion of projects in the ITIP. During the 2004 RTP

update effort, MTC proposed to the CMAs in the region that they recommend goods movement projects for inclusion in the ITIP. The goods movement study team then identified projects in interregional corridors or international gateways that were appropriate for inclusion in the ITIP based on this criterion.

A third approach used to integrate goods movement into the RTP process is the development of a new set of projects that addressed regional goods movement needs for inclusion in the “Big Tent.” Big Tent projects are those projects that are important to the region’s transportation system but for which no immediate source of funding is available. In this RTP update, Big Tent projects were identified with the assumption that a variety of new revenue sources might be available over the next several years (either through new programs in reauthorization, local sales tax measures, or other user-based revenue sources). By putting the projects in the plan in anticipation of these funding sources, MTC was making a statement of regional transportation priorities. The goods movement study team did a more intensive evaluation of potential projects that could address the critical goods movement issues identified in Phase I of the study. These projects are being included in the RTP as part of the Big Tent.

A final approach used to integrate goods movement into the RTP process was through the regional transportation and land-use platform, a statement of policy on Smart Growth issues intended to guide certain investment decisions by MTC. MTC already has several programs that provide planning grants and financial incentives to cities that are willing to promote transit-oriented development and other forms of development that further the region’s Smart Growth objectives. The transportation and land-use platform guides the development of new programs and policies that are supportive of Smart Growth. Several of the goods movement stakeholders made a strong push to include guiding principles and implementation strategies for the encouragement of goods movement supportive land-use strategies as part of the transportation and land-use platform. This met with mixed reactions from the transportation and land-use advisory committees who tended to see land-use issues from a different perspective. While there was much debate about some of the premises under which it would be appropriate to incorporate industrial land preservation in the Smart Growth program, the goods movement stakeholders were successful in getting some language regarding the goods movement land-use issue in the platform that will be included in the RTP. In addition, staff at MTC is interested in holding further discussions about what role MTC should play in encouraging industrial preservation as part of the Smart Growth program.

There are other possible outcomes of the RTP process that bode well for long-term integration of goods movement into the planning process. MTC is considering reviving the FAC. With the projects and policies identified in the goods movement study, the FAC would have a clear near- to mid-term agenda of actions to pursue, which might make it more successful. In addition, business stakeholders have become involved in the process through the goods movement study and there is a basis for identifying potential participants in the FAC. MTC also has recognized the need to build greater freight modeling capability into the regional travel demand model. Several specific suggestions have been advanced and are being considered when funding becomes available.

Success Factors and Applications for Small- and Mid-Sized MPOs

The success of the MTC program remains to be seen. If the efforts initiated in the 2004 RTP update can be sustained, the factors contributing to success are

- **Stakeholders drive the agenda.** MTC would probably have dropped consideration of goods movement issues altogether were it not for strong interest from segments of the business community. Clearly the economic development implications of goods movement have been at the forefront of this interest. The timing of the 2001 RTP update at the beginning of a recession

that has had serious implications for the Bay Area economy certainly raised the profile of goods movement issues. This is not something that an MPO can orchestrate. However, regular scanning of the business community for goods movement issues is a good way of making sure you are prepared when these issues do arise.

- **State funding for data gathering and issues reconnaissance.** The Caltrans SPR funding was very useful to MTC in the development of a study that gathered data and worked with stakeholders to define issues and develop project concepts.
- **Framing freight issues in the context of local transportation issues.** The connection between goods movement and land use, while controversial, receives a lot of attention in the Bay Area. This approach to tying goods movement issues to other transportation issues can be an effective strategy.
- **Incremental approach to project selection and programming.** While from a classical planning perspective it may make more sense to do a thorough needs assessment and then develop projects based on this needs assessment, the approach of looking at projects that already are being proposed and looking for a goods movement “angle” has the advantage of bringing local decision-makers into thinking about goods movement gradually. It also creates coalitions between goods movement stakeholders and other stakeholders and allows them to see common interests more clearly.

Large MPO Case Study

New York Metropolitan Transportation Commission

Key Lessons: Development of a regional freight plan.

MPO Overview

Planning in greater New York City is marked by its scale: large population, large buildings, large infrastructure, and large challenges. The New York Metropolitan Transportation Commission (NYMTC) is the designated MPO for a portion of the metropolitan area. The NYMTC addresses the challenges of congestion, programming of infrastructure and operations improvements, and planning for safer, more efficient, and environmentally sensitive freight movement throughout the region. For planners, size is not necessarily an advantage; New York's expansiveness can make the transportation system's problems seem more confounding and intractable.

New York City had a population of just more than 8 million in 2003 and a metropolitan population well above 20 million, ranking it among the largest cities in the world. NYMTC oversees transportation planning activities for a 10-county portion of the metropolitan area including the City of New York (five boroughs); Nassau and Suffolk Counties to the east (all of Long Island); and Putnam, Rockland, and Westchester Counties to the north. With a population of 12.2 million in 2003, this area grew by 10 percent since 1990 and is expected to grow by an additional 5 percent (to 12.9 million) by 2025. Employment in the region, concentrated in Manhattan, grew by almost 9 percent between 1990 and 2000 to 6.4 million jobs. NYMTC projects 11 percent growth to more than 7 million jobs by 2025. It is important to note that NYMTC does not include any portions of northern New Jersey or southwestern Connecticut, both parts of the New York City urban agglomeration.

New York is the largest consumer market in the country, meaning more goods flow into New York as a final destination than any other city. New York also produces goods for export to other countries and regions and serves as a port of entry for foreign goods. The Port of New York/New Jersey is the third largest by volume in the country. A highly complex, congested network of interstate highways, parkways, and railways crisscrosses the region, serving as the conduits for freight traffic originating in, destined for, and passing through New York. In addition, the region is served by two major cargo airports (Newark and Kennedy), dozens of rail termini and intermodal facilities, and some 60 NHS intermodal connectors. It is not uncommon to attribute New York's unique freight situation, its wealth, and grandeur, to the fact that "the world trades there."

Congestion is part of the daily life of New York, not only for passenger travelers, but also for freight. Many of the region's most attractive truck routes experience "chronic" congestion, including Major Deegan Expressway (I-87) and Cross Bronx Expressway (I-95). Similarly, freight traveling by rail experiences delays because of shared routes with passenger trains and, in some cases, shared operators. Aside from congestion, the region also grapples with air quality concerns, exacerbated by the fact that trucks carry more than 80 percent of all freight in the region.

Successful implementation of freight planning is a long-term and complex task in New York. The institutional intricacies alone represent high hurdles. Coordinating transportation goals and activities between the MTA, Port Authority, NYSDOT, the City of New York, and many other entities is difficult but not insurmountable. On top of that, understanding the physical complexity, the sheer vastness of the city, and its network of flows requires a thoughtful, rigorous, and comprehensive analysis.

In 1999, NYMTC began developing its regional freight plan, a multiyear project to assess the region's freight infrastructure conditions, predict goods flows, identify key areas for concern, and select alternative improvement options for priority consideration. If adopted, projects from

the freight plan would be considered for insertion into the TIP, STIP, and various other available implementation and funding programs channeled through the MPO. Because of institutional complexities and divergent freight goals among stakeholders, however, the freight plan was not adopted by the NYMTC board. Nonetheless, the experience of developing a regional freight plan in New York affords some important lessons and a dose of optimism for the usefulness of freight plans in the context of smaller, less complex regions.

Freight Planning Activities

Like other MPOs, New York incorporates freight-related projects into its TIPs and considers freight in the LRP. Beyond that, NYMTC continues to seek involvement and input from industry. One manifestation of this outreach effort is the Freight Transportation Working Group (FTWG), a body consisting of freight providers and receivers, business associations, and community stakeholders.

Approved by the policy board of NYMTC, FTWG's role is to bring freight issues into the fold of metropolitan planning. FTWG meets monthly and was responsible for the proposal to develop a regional freight plan in 1999. Later, throughout the drafting of the plan, the group acted as an intermediary, identifying and inviting select, important stakeholders from the freight community to participate in the development of the regional freight profile.

NYMTC also conducts small-scale, special purpose studies. For instance, a report completed in 2003 assessed the availability of land for development of intermodal facilities. An earlier technology scan identified the "most significant existing and emerging technologies which affect or could affect freight transportation" in the region. NYMTC occasionally carries out other related technical and policy studies.

Development of the Regional Freight Plan

The most rigorous recent undertaking related to freight within NYMTC was the regional freight plan, a study that took 5 years to complete. Despite the institutional difficulties encountered in its development, the process and outcome illustrate important lessons in freight planning.

In 1999, the FTWG proposed and the NYMTC board approved the development of a regional freight plan. The plan, in part a response to TEA-21 and in part a fulfillment of goals expressed in the LRTP, was to examine freight conditions, needs, and opportunities for improvement in the NYMTC region.

The regional freight plan included a number of components:

- **Internal and external scan.** A description of freight studies undertaken in the New York area by a number of agencies, companies, and organizations in the past century and an external study of best practices in freight planning throughout the nation.
- **Inventory.** A description of existing freight facilities, markets, and projected future demand.
- **Assessment of needs.** Performance measures, needs, and deficiencies for all modes; analyses of economic development, environmental impacts, and forecasted commodity flow growth.
- **Improvements and solutions.** A list of proposed infrastructure, operations, and policy improvement alternatives to address specific and general needs and deficiencies for economic development and for all modes: highway (truck), rail, maritime, and airport.
- **Feasibility analysis of alternatives.** An in-depth quantitative and qualitative analysis of the feasibility of three packages of alternatives: policy, highway, and rail. The packages contained 16, 8, and 3 projects, respectively. Impacts analyzed included transportation, environmental, economic development, regional connectivity, technology, physical feasibility, and institutional feasibility.
- **Development of an implementation program.** Recommendations for specific projects, policies, and general strategies for the freight system of New York based on the cumulative studies already completed.

Implementation of the recommended, high-priority projects and policies from the last task was to occur through the various responsible agencies of the New York region, including the Port Authority, NYSDOT, and others. First, though, to receive funding, the priority projects were to be considered for inclusion in the regional and statewide TIPs and other funding programs. However, because the final task was not adopted by the board, the identified programs and projects are unlikely to receive funding or even much further consideration, at least in the near term.

The board's failure to adopt the freight plan reflects several of the shortcomings of the metropolitan planning process that are specific to New York. Large public agencies present considerable institutional barriers to the planners at NYMTC. Such barriers, coupled with passive indifference from the freight industry, which views the long-term planning process with detachment because of more immediate and vital industry concerns, conspire to overwhelm the potential effectiveness of a long-term document like the regional freight plan.

Success Factors and Applications for Small- and Mid-Sized MPOs

Although the New York freight plan's recommendations have not progressed to an implementation phase, which may seem discouraging, the regional freight plan completed in New York does provide lessons for the freight planning process in other places.

NYMTC's motivation for performing a freight plan was a response to the sense that the region is choked by chronic congestion and increasing air quality woes. The short-term planning horizons within the freight industry are incapable of dealing with such long-term problems as inadequate capacity, environmental problems, and economic losses due to lower productivity (resulting from suboptimal logistics operations). On the other hand, the mission of an MPO is precisely to address those types of long-term issues. In spite of New York's difficulties in implementing its freight plan, other regions should still consider the freight plan as a valuable tool in setting long-term policy, particularly if the MPO wields enough clout within the region to influence the policies and actions of other agencies.

A common drawback for many regions is that the long-term horizon of a freight plan may seem unreasonable. As such, shorter-term projects and plans, in line with those pursued by such large MPOs as the DVRPC, at times may represent an equally or more constructive path for freight planners. MPOs can center their efforts on more narrow, small-scale, local goals and projects. Shorter-term goals carry higher hopes of success and, therefore, engender feelings of accomplishment among planners and within the freight industry. A long-term, visionary document for freight helps to fulfill statutory planning requirements, but successfully touting its usefulness to industry and successfully implementing its stated goals requires the kind of coordination among stakeholders that an ongoing, short-term focus makes easier to achieve. And without support for implementation, the freight plan risks becoming a missed opportunity.

Large MPO Case Study

Delaware Valley Regional Planning Council Philadelphia

Key Lessons: Engaging the private sector to implement freight improvements.

MPO Overview

A successful metropolitan freight planning program requires private sector involvement. However, private sector participants often perceive the public sector process for developing, approving, and implementing transportation improvements as slow and inflexible, which hinders their full participation. Having private sector participants devote a significant amount of time before realizing tangible benefits exacerbates the problem. To combat these issues, a number of MPOs (including the Delaware Valley Regional Planning Council [DVRPC]) engage the private sector with quick turnaround or quick-fix projects that, through swift review and implementation, avoid the pitfalls often encountered by more complex (and expensive) freight improvements. These quick-fix projects can provide immediate benefits to the freight community on a time scale more suitable for industry while simultaneously encouraging industry participation in longer-term freight planning efforts.

The DVRPC is the MPO for the greater Philadelphia area. It handles transportation planning activities for the nation's sixth largest metropolitan area, including five counties in Pennsylvania and four in New Jersey. In 2003, the Census Bureau estimated a population of nearly 5.5 million for the nine counties, representing a growth rate of 5 percent since 1990. DVRPC projects 9 percent population growth to 6.0 million people and 3 percent employment growth to 3.2 million jobs by 2025. The shift to service industries stands out in Philadelphia, where services now account for half of all jobs. Manufacturing, on the other hand, has declined from nearly 30 percent in 1970 to about 12 percent today of total employment.

The Delaware Valley region has a number of critical freight routes and connectors, including three Class 1 railroad providers, 12 short-lines, 10 NHS freight intermodal connectors, several transload facilities and intermodal rail terminals, a large freshwater port, Philadelphia International Airport, and six interstate highways, including Interstate 95. Ports in Philadelphia and western New Jersey handle more than 60 million tons of freight annually; much of it is bulk cargo such as crude oil and signature cargo such as cocoa beans, steel slabs, and high-grade paper, making it second in tonnage in the Northeast only to New York and New Jersey.

To meet the transportation needs of its expansive freight enterprise, DVRPC emphasizes freight in its planning activities, but also engages the private sector in short-term, quick-fix projects to bolster its relationships with the freight industry. Perhaps even more important than the projects themselves, however, are DVRPC's general advocacy for freight both inside and outside of the MPO, its responsiveness to freight issues, and its customer service orientation with respect to freight interests in the region.

Freight Planning Activities

DVRPC's Urban Goods (freight) program derives much of its strength from the Delaware Valley Goods Movement Task Force, an advisory committee for freight policy and planning issues. Membership on the task force is "open to all freight interests," including railroads, ports, truckers, air cargo carriers, third-party logistics companies, and agencies at all levels of government. While the actual composition of the board is half public, half private, chairs for the three primary subcommittees (data, planning, and shippers) all represent the private sector. The task force meets quarterly and hears presentations from academics, industry representatives, leaders in the freight planning field, and its own members. It provides formal links between private sec-

tor freight providers, DVRPC, and other governmental agencies. Since its formation in 1993, the committee has not only increased freight input into long-range planning and TIP selection processes, but also coordinated with DVRPC for delivery of quick services to industry while successfully advocating freight issues in general. One manager attributes success to a mutually beneficial, service-oriented mission of outreach to shippers and carriers: DVRPC provides the freight community with up-to-date MPO activities of interest to the industry, and the freight industry regularly communicates its needs and concerns to DVRPC.

DVRPC's current LRP, *Vision 2025*, includes a list of 12 projects consistent with freight goals. The plan identifies another 19 studies specifically aimed at the freight sector. Participation by the private sector through the task force allowed for consideration of freight projects in the TIP as well: "Since there is no special funding category for freight-related projects, the input of the committee is central to assuring the advancement of eligible projects which facilitate the flow of goods and promote economic development." As a result, the region's most recent TIP includes several dozen projects identified by the freight task force. Five of 24 winning projects for the CMAQ (Congestion Mitigation and Air Quality) Improvement Program also were freight-specific, such as development of a transload facility and improvements to rail lines. Beyond traditional LRPs and improvement programs, DVRPC is currently undertaking a number of freight studies, including the *Rail Weight Limit Study*, *Delaware County Highway-Railroad Grade Crossing Study*, *South Philadelphia Freight Complex Study*, *Southern New Jersey Port Inland Distribution Network Study*, and *South Jersey Intermodal Connectors Study*.

One manager points to the Freight Forward program as a small but important part of DVRPC's advocacy for freight in the Delaware Valley region. DVRPC cooperates with public sector agencies responsible for operating facilities and implementing improvements, including the PennDOT, NJDOT, Delaware River Port Authority, Pennsylvania Turnpike, New Jersey Turnpike, and others. As described in the following subsection, the program has not necessarily expanded from its original scope, but because of the growing cooperation between freight stakeholders and DVRPC around Freight Forward, it stands out as one among many complementary programs that has brought and kept the freight industry "in the loop" with regard to MPO activities.

Development of Freight-Specific Program—Freight Forward

The Urban Goods program sees itself as an advocate for freight both within the MPO and throughout the Delaware Valley. Beyond encouraging participation in traditional planning activities, DVRPC's freight planning strategy is to develop strong relationships with freight industry constituents through the provision of tangible, short-term services. In return, the freight industry commits some of its resources to the planning process via participation with the Goods Movement Task Force. Alone, Freight Forward is but one small, tangible service; together with DVRPC's other efforts, Freight Forward is part of a broad, successful outreach program.

Freight Forward is a cooperative improvement program between DVRPC, local agencies, and the freight industry. It encourages shippers, carriers, and other freight stakeholders to propose quick-fix projects by completing a short form and sending it to DVRPC via traditional mail, e-mail, or the DVRPC web site. Candidate quick-fix projects include

- Pothole repairs,
- Highway and railroad grade crossing resurfacing,
- Signage improvements,
- Truck turning radii improvements,
- Traffic signal timing adjustments,
- Pavement marking improvements, and
- Railroad siding improvements.

While large-scale improvements such as road widening require competitive consideration as part of a formally programmed TIP or another, similar process, DVRPC planners and engineers review Freight Forward's small improvement requests and forward them to the appropriate maintenance agencies for more immediate remediation.

Typically, DVRPC receives about one request per month for an improvement. On occasion, public works crews already have scheduled the improvement for repair. In other cases, the requested improvement is quickly reviewed and, if appropriate, forwarded to implementing agencies for their attention. The status of the problem and potential improvement are then reported back to the original requester. Because the MPO does not have responsibility for small capital projects, this service is simply a courtesy provided to the freight industry at little cost to the MPO. Freight Forward remains just a small piece of DVRPC's efforts to serve the freight community, but what began with patching pieces of pavement led to a more open information exchange roughly centered on DVRPC.

Advocacy for freight by staff members within DVRPC is noteworthy. They have brought greater attention to the needs of and issues facing the freight community within the MPO. Several examples of advocacy, in a similar spirit as Freight Forward, but carried out concurrently, stand out: sending copies of the proposed and approved TIPs for feedback from members of the freight task force; inviting members of the freight industry, freight planning community, and academia to speak at task force meetings; submitting freight-specific stories to the monthly MPO newsletter; assisting with coordination of facility tours for visitors; nominating freight planners for MPO-wide awards; and preparing a standing presentation about freight in the region.

Success Factors and Applications for Small- and Mid-Sized MPOs

In Philadelphia, the relationship forged between the MPO and the private sector began with the identification of short-term, inexpensive, quick-fix projects and led to a strong relationship with industry that includes its involvement in the long-term planning process. Freight stakeholders now participate in the identification of strategic planning issues and help to guide a more appropriate and effective freight policy through planning. The ongoing presence of dedicated and competent MPO staff, combined with champions from the region's leaders has helped drive the continued success of DVRPC. This lesson can transfer directly to small MPOs that experience difficulties with involvement from the freight sector.

Numerous jurisdictions overlap even within small MPOs, from state highway departments to local public works agencies to privately owned rail corridors to the MPOs themselves. Potholes, tight turning radii, and inadequate signage or striping represent straightforward problems whose solutions may not be so obvious because of the numerous agencies charged with maintenance of the infrastructure. The MPO can serve as a clearinghouse for improvement requests. By sorting particularly onerous or commonly heard concerns, specifying the needed solution, and passing the information to the appropriate implementing agency, the MPO establishes itself as a partner in promoting the interests of its customers in the freight industry.

Developing such a program will, however, require the following at a minimum:

- Marketing the MPO as the first-stop resource for small-scale infrastructure needs, either as part of a larger program or through simple, direct outreach to freight stakeholders. DVRPC used the task force as its principal means for disseminating information about Freight Forward;
- Designating at least one staff member to receive and process requests from the public;
- Identifying implementing agencies within the MPO, their jurisdictions, and their capabilities (public works departments and state highway department districts, for example); and
- Developing relationships through the program and other contacts to stay informed of the issues facing the freight community.

When surveyed, many MPOs identified the shortage of staff as a fundamental obstacle to completing their missions, yet even for a large organization like DVRPC, the Freight Forward program requires a negligible amount of staff time. It is characterized as a “low-cost, high-benefit” program.

Once implemented and marketed to the freight industry, developing relationships is the most critical step. If the purpose of the program is to engage and involve freight stakeholders for more long-term goals, then responsiveness to other short-term requests and maintaining awareness of freight needs are essential. In addition, the program must persist. Once freight stakeholders come to the table to contribute to the LRP, the MPO should continue providing incentives through short-term assistance. The relationship quickly becomes a symbiotic one.

From DVRPC’s example, small MPOs can see that a customer service orientation with regard to small, short-term projects can pay large, long-term dividends. Creative programs, not necessarily replicas of Freight Forward, provide incentives for freight industry shippers, carriers, and other stakeholders to develop relationships with the MPO. For small MPOs, that incentive may not be exactly the same as in Philadelphia, but the same principles apply: outreach, provision of incentives, encouragement to participate in long-range planning, and, finally, cultivation of a mutually beneficial relationship. For DVRPC, this relationship is maintained largely through the freight task force, an entity which small MPOs may have difficulty organizing. Nevertheless, other avenues for fostering relationships exist such as chambers of commerce, industry associations, and other direct contacts. In many small MPOs, relationships with these groups already exist.

The lesson from DVRPC is that freight planning does not have to be exclusively technical or exclusively long term. DVRPC has aptly demonstrated that good freight planning may simply require advocacy, recognition of the importance of freight to a local economy, and a willingness to inquire about and address the immediate needs and concerns of the industry.

Large MPO Case Study

East-West Gateway Coordinating Council St. Louis

Key Lessons: Development of freight performance indicators.

MPO Overview

Goods movement has always been important in St. Louis, a city which was founded as a fur trading post. Even today, the region's strategic location provides it with trade advantages that few other cities can match. To a large extent, future growth and economic development stem from the ability of St. Louis to maintain its competitive trade advantage. The East-West Gateway Coordinating Council (EWGCC) is the MPO for the St. Louis region. As part of the transportation planning process, the EWGCC gauges the performance of the region's freight infrastructure operations. Private sector engagement provided a key foundation for responsive freight planning. In addition, St. Louis freight planners benefited from the lessons learned from earlier efforts to incorporate performance measures into long-range transportation planning.

St. Louis had a 2003 regional population of 2.5 million that is expected to grow to 2.7 million by 2025, and employment of 1.3 million is expected to exceed 1.5 million by 2025. St. Louis is also home to many large companies that rely on efficient goods movement: Boeing, Anheuser-Busch, Ford, and General Motors all have major facilities in the area. Six Class 1 railroads provide service in St. Louis, along with several regional and short-line railroads. These railroads also rely on a network of intermodal facilities and the four interstate highways that serve St. Louis. Additionally, city-owned Lambert International Airport offers air cargo facilities, numerous ports line the Mississippi River, and seven NHS intermodal connectors have been identified in the St. Louis region.

EWGCC focuses part of its planning efforts on performance measures, including measures for its freight infrastructure and operations. EWGCC describes the development of the LRTP, *Transportation Redefined*, as follows:

East-West Gateway planners follow a performance-based planning process centered around the transportation customer that evaluates needs and prioritizes transportation investments against six focus areas, including system preservation, safety, congestion, access to opportunity, sustainable development and the movement of goods.

EWGCC comprises three counties in Illinois, four counties in Missouri, and the City of St. Louis. Although the fur trade is long gone, the St. Louis region still serves as a critical hub for the nation's goods movement network.

Freight Planning Activities

In the early 1990s, EWGCC established a FAC. Its 40-plus members include officials from all levels of government and freight representatives from the trucking, rail, air cargo, barge, warehousing, and shipping industries. Figure 5.2 depicts an early conceptualization of the freight planning process, including the advisory committee's role.

In recognition of the "profound" impact of goods movement on the local economy, EWGCC established a regional freight movement system called the Priority Goods Movement Network (PGMN). The network includes descriptions of all surface, air, maritime, and intermodal infrastructure as well as critical features of the distribution and manufacturing sectors. The PGMN represents the first step in a process of "identifying, analyzing, and programming the needs of the freight community." EWGCC cites several advantages to the development of the PGMN; for instance, it serves as a catalog of readily identifiable improvements for long-range planning and improvement programs. In addition, planners and industry representatives collaborate in helping to identify necessary components of the PGMN.

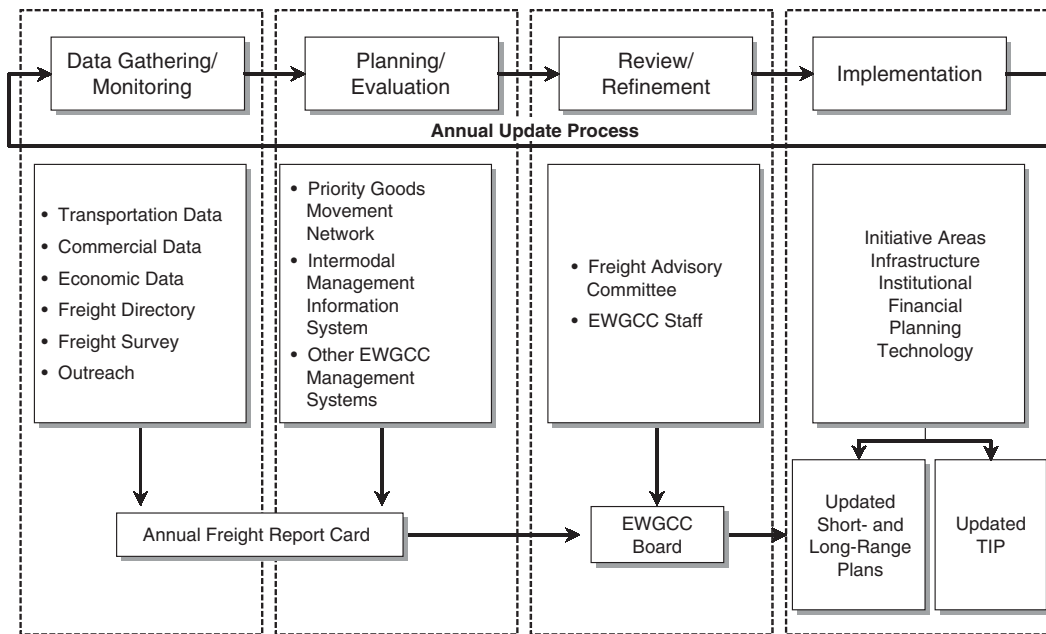


Figure 5.2. Update of performance indicators for freight.

The PGMN and other data collected from the freight industry make up the freight “report card.” A report card allows for comparison of existing conditions (measures) to a set of prior agreed-upon performance indicators. Although development of performance indicators seems like an uncomplicated process, it actually entails a number of potential pitfalls. The experience of St. Louis provides lessons for MPOs or other organizations interested in developing performance indicators for application to freight.

Development of Performance Indicators for Freight

EWGCC has been innovative in developing performance indicators for all facets of the transportation planning process. Early attempts at defining indicators, however, encountered problems for several reasons. First, as part of a Major Investment Study (MIS), indicators considered were not representative of the specific projects to which they were subsequently applied. Furthermore, data required for the indicators were unavailable, and the high number of indicators (about 50) was too large. A second attempt at using performance indicators tied to project selection for the TIP proved inadequate for measuring progress toward overall transportation goals.

Having learned from its previous efforts, EWGCC’s third iteration was neither too ambitious nor too ambiguous; it was “just right.” The third attempt developed performance indicators specific to the freight system in St. Louis that coincided with important goals shared by the FAC. In addition, the number of indicators was manageable in size and could be measured with available or easily obtainable data. The refined list of indicators was divided into five summary categories, and the regional freight plan recommended their use in a regional TIP. The list of indicators follows:

Connectivity/Congestion

- Average speed on the St. Louis region’s roadway network.
- Truck counts at several key locations on the PGMN.

Safety

- Number of at-grade railroad crossings in the region or on the PGMN.
- Number of overpasses in the region (or on the PGMN) that have vertical clearance restrictions.

- Number of weight-restricted bridges in the region (or on the PGMN).
- Intersections with inadequate turning radii for 53-foot trailers in the region (or on the PGMN).
- High-accident locations on the PGMN as well as total number of accidents.
- Ramp geometry where sight distance to poor or sharp turns is required.
- Pavement life remaining on PGMN routes.

Reliability

- LOS below C on PGMN roadways.

Intermodal

- Tons of air freight departing STL.
- Tons of cargo transported through the port.

- Number of intermodal lifts that occur yearly at the local intermodal facilities.

Economic/Environmental

- Value of freight moved from, to, and within the region.
- Number of people employed in five major economic sectors in the region (e.g., transport and manufacturing).
- Amount of warehouse space available in the region and current occupancy rate of the warehouse space.
- Number of projects and dollars expended on the PGMN.

EWGCC carefully considered the constraints imposed by previous experience with performance indicators. As a result, the refined list reflects a balance between the need for meaningful indicators that truly inform the process for programming improvements and the need for indicators that are easily measurable.

Success Factors and Applications for Small- and Mid-Sized MPOs

Because St. Louis has gone through several iterations of performance indicator development in its MPO activities, its lessons and insights are particularly informative. According to the *NCHRP Report 446*, the third iteration had much more success than previous attempts.

Measurement of performance requires several distinct efforts on the part of an MPO of any size. First, the indicators require input from industry. Freight stakeholders work in the field everyday and their perspectives on the most important aspects of the goods movement system are essential. As a result, MPOs should consult with the shippers and carriers of their respective regions when developing performance indicators. Secondly, potential indicators are by themselves meaningless if they cannot be measured. They require data for measurement, so MPOs must be mindful of their capacity for data collection in drafting the indicators. Third, the process is dynamic. Over time, indicators must change to reflect improved understanding of issues and associated problems, especially as informed by the involvement of industry participants.

Once applied, measurements of performance provide several layers of usefulness for MPOs interested in improving freight planning activities and nourishing relationships with freight industry stakeholders. For example, the adage that “what gets measured is what gets done” likely holds true. Although freight traditionally receives less attention than other transportation issues in the planning process, those aspects of the freight system that are measured are more likely to garner attention and have a greater chance for being addressed. Furthermore, performance measurement provides a link with industry. An MPO can expand the realm of inputs for its planning process by inviting collaboration with freight stakeholders to develop indicators. Lastly, because of the link between infrastructure and productivity, improving goods movement benefits the regional economy. In this way, freight performance measurement has a direct tie to the operational and infrastructure improvements that facilitate economic growth.

Several other lessons from the development of freight performance indicators in St. Louis merit consideration:

- Use measurements as tools to identify performance improvement opportunities rather than as a means to lay blame for apparent shortcomings.
- Resist the temptation to expand the number of indicators and thereby reduce their effect (the EWGCC considers 15 to 20 indicators to be optimal).
- Some prospective measures may be too peripheral to offer value to the planning process; these indicators should be identified and removed from consideration.
- Since “what gets measured is what gets done,” select indicators carefully to ensure that all critical program areas receive attention.

Developing performance indicators, gathering data for measurement, reporting performance, and updating indicators to reflect changing freight circumstances requires substantial effort on the part of MPO staff. Nevertheless, for organizations interested in developing performance measurements, the St. Louis experience provides lessons and techniques for the designation of performance indicators that can save time, money, and effort by focusing on those that can be realistically evaluated and reflect program goals.

Large MPO Case Study

Puget Sound Regional Council Seattle

Key Lessons: Development of focused freight initiatives.

MPO Overview

Based on trade volumes as a share of gross state product, the Puget Sound Regional Council (PSRC) web site affirms that Washington is “the most trade-dependent state in the nation.” Consequently, PSRC and other responsible public agencies devote considerable attention to freight planning and advocating for freight projects. The primary vehicle for addressing freight-related issues in the region is a commission called the Freight Action STRategy (FAST) Corridor, though the MPO also recognizes the importance of freight through core planning initiatives such as the LRTP and TIP.

The PSRC serves as the MPO for four counties (King, Kitsap, Pierce, and Snohomish) in the Seattle-Tacoma-Everett metropolitan area in northwestern Washington. Members of the MPO in addition to the counties include 70 cities and towns; two federally recognized Indian tribes; six transit agencies and the Seattle Monorail Project; the WSDOT and Washington Transportation Commission; and the Ports of Everett, Seattle, and Tacoma. The fast-growing metropolitan region, with a current population of about 3.3 million, expects a 1 percent annual rate of increase through 2030, when the population is projected to exceed 4.5 million. Demographers expect a slightly higher annual rate of growth for employment, from 1.8 million jobs in 2000 to 2.5 million jobs by 2030. About 13.4 percent of jobs in the region are manufacturing jobs, and nearly one-third of those jobs are in the aerospace industry, dominated by Boeing and affiliated companies.

The Seattle region also has two major interstate highway routes (I-5/I-405 and I-90), two Class I railroads (UP and BNSF), about half a dozen short-line carriers, more than 30 NHS intermodal connectors (many of which connect to freight facilities), three major ports, more than 30 transload facilities, Sea-Tac International Airport, and Boeing Field. Together, these facilities make up the area’s “freight movement package” to compete with other major west coast port cities such as Vancouver, Portland, San Francisco-Oakland, and Los Angeles-Long Beach.

Freight Planning Activities

The PSRC operates within the context of a very freight-conscious region and state. A variety of state task forces as well as public and private sector partnerships focus on freight needs, perform freight planning, and identify freight projects in need of funding. The PSRC’s contribution to these activities has been largely in a supporting role, although the MPO, along with WSDOT, runs the FAST Corridor program, which has identified a very specific list of freight improvements.

Since 1995, the PSRC has published about a dozen freight and goods mobility reports, with topics ranging from general discussion of the development of FAST partnerships to analyses of existing freight movements and conditions in the region to a regional “business plan” for FAST.

The PSRC’s LRTP, *Destination 2030*, includes a section supporting the efforts of FAST Corridor. In particular, the plan supports adoption of recommended infrastructure improvements from Phase I and Phase II of FAST as part of the LRP and continued inclusion of identified improvements from FAST. While recognizing that the FAST recommendations largely fall into the near-term category, *Destination 2030* mentions its commitment to “corridor improvements, truck priority and truck geometrics projects, intermodal and multimodal infrastructure projects, and information infrastructure projects” throughout the planning horizon. Presumably, such projects will be included in the LRP as they are identified by FAST Corridor.

Development of Freight-Specific Initiative—The FAST Corridor

In 1996, the PSRC and WSDOT partnered to create the FAST Corridor (originally called FAST CAST) program. Members of the FAST partnership include transportation agencies, ports, cities, economic development organizations, as well as trucking, rail, and other business interests. Now entering Phase II, the primary accomplishments of FAST Corridor members have been to identify and promote projects for the freight sector. The task force takes a multipronged approach to freight planning, including marketing Puget Sound as a desirable port to international shippers, advocating for freight-specific projects and favorable legislation at all levels of government, and encouraging private sector freight members to invest in freight infrastructure. The PSRC hosts meetings of the FAST members each month at its headquarters.

In the late 1990s, Phase I of FAST Corridor identified 15 projects in the Seattle area to improve the freight transport infrastructure. Seven of those projects are now complete, one is under construction, six are scheduled to begin construction by 2005, and right of way currently is being purchased for another. Among the completed projects is an overpass above State Route 509 into the Port of Tacoma, a project to reduce congestion on SR 509 and to “hasten the flow of trucks in and out of the Port of Tacoma.” Another completed project, South 180th Street in the Town of Tukwila, provided a grade separation for a four-lane road at a BNSF/UP crossing, where approximately 40 trains pass per day. Most of the 10 Phase II projects are currently in the design phase. Although several have been chosen to receive funding, not all of the projects currently are programmed. Nevertheless, language in the official LRP for PSRC suggests that FAST Corridor recommendations will receive priority consideration in both the LRPs and improvement programs.

FAST Corridor members recently convened in a workshop setting to assess the progress of the task force and to define its future direction. One conclusion of the meeting was an insistence among members to review the progress and effectiveness of Phases I and II before moving to Phase III. Also, based on presentations from major freight businesses, including Boeing, UPS, DHL, and the Ports of Seattle and Tacoma, the report from the workshop concluded that increasing the region’s competitiveness with other American ports of entry should be a primary driver of the coalition’s strategy. Particularly, members need to herald their successes in implementing projects that benefit regional mobility and facilitate economic expansion. By pointing out to elected officials that the region’s freight facilities and shippers are responsible for a large number of jobs (according to the Port of Seattle, its activities generate 165,000 jobs), members hope to bring greater public funding to the freight sector. Strategies include quantification of freight benefits and, essentially, advocating the importance of freight to decision-makers, the general public, and members of the freight sector.

An implicit benefit of gathering freight stakeholders to participate in FAST Corridor is their exchange of information, concerns, and strategies. For instance, presentations from corporations such as Boeing and UPS and the Seattle-area ports at the recent workshop each included a list of recommended freight strategies. Ranging from the relatively concrete and short-term (“document and share height and weight of bridges and overpasses” and “extend marine gate hours to 24 hours”) to the more abstract and strategic (increase capacity “through land, technology, and efficiencies”), participants should be able to understand better how the distinct pieces of the freight enterprise interact and to identify shared needs more readily.

Success Factors and Applications for Small- and Mid-Sized MPOs

The context within which the PSRC’s FAST Corridor operates gives more attention to freight. Seattle’s strategic location and its reliance on trade compel an efficient goods movement infrastructure that is well-planned, well-maintained, and well-funded. Efforts by FAST Corridor to publicize its vision, to encourage greater attention to freight among the public and policy-makers, and to sustain a sense of urgency among freight planners and operators in the region have contributed to the success of the program.

In some small- and mid-sized MPOs, goods movement and trade play roles as important as in Seattle. In such instances and others, the strategies to encourage the involvement of freight stakeholders and to secure greater funding for freight infrastructure include engagement of the major employers and users of the freight network. Inviting these industries (as well as ports and carrier companies such as UPS) to present their concerns at the MPO or freight task force meeting has the dual benefit of allowing the MPO to understand more clearly the needs of the industry while allowing the industry to realize that its voice is an important part of the freight improvement process.

Another strategy is to recognize when freight mobility becomes an urgent concern, then communicate that urgency to the private sector and to governmental funding agencies. When this approach is coupled with freight advocacy strategies that explain the impact of goods movement on the local economy, it frames the discussion of freight in terms to which decision-makers are more likely to respond: for example, number of jobs generated by goods movement and overall economic benefit to the local economy.

As with other MPO freight initiatives, Seattle's FAST Corridor efforts reflect the shorter time scale on which the needs of the freight industry operate. While longer-term planning remains a product of the PSRC, the PSRC's FAST Corridor program has advocated for and implemented 7 projects in fewer than 10 years of existence, with another 8 projects near completion and about 10 in the design phase. Yet, despite these apparent successes, FAST members have recommended that they resist the temptation to look too far forward by beginning another cycle of project identifications. Instead, they plan to assess the value of the work completed to date and examine the effectiveness of the processes that they follow in identifying and selecting projects. Validating past work, although likely only applicable to organizations that have actively participated in freight planning for a number of years, nonetheless illustrates a strategy of self-assessment that can improve the effectiveness of MPO-level involvement in freight.

Freight Glossary References

Freight Glossary References

There are several freight and freight planning glossaries available to MPO freight planning staff. Table 5.8 provides links to several of these resources.

Table 5.8. Freight and intermodal glossaries.

Glossary Name	Link
FHWA Freight Professional Development Program Freight Glossary	http://ops.fhwa.dot.gov/freight/fpd/glossary/
Intermodal Association of North America Intermodal Glossary	http://www.intermodal.org/statistics_files/Intermodal%20Glossary.html
Council of Supply Chain Management Professionals Supply Chain and Logistics Glossary	http://www.cscmp.org/Downloads/Resources/glossary03.pdf
American Association of Port Authorities Glossary of Maritime Terms	http://www.aapa-ports.org/Industry/content.cfm?ItemNumber=1077&navItemNumber=545

Abbreviations and acronyms used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation